ROHDE&SCHWARZ
MÜNCHEN

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans

R 29500 Bl. 4

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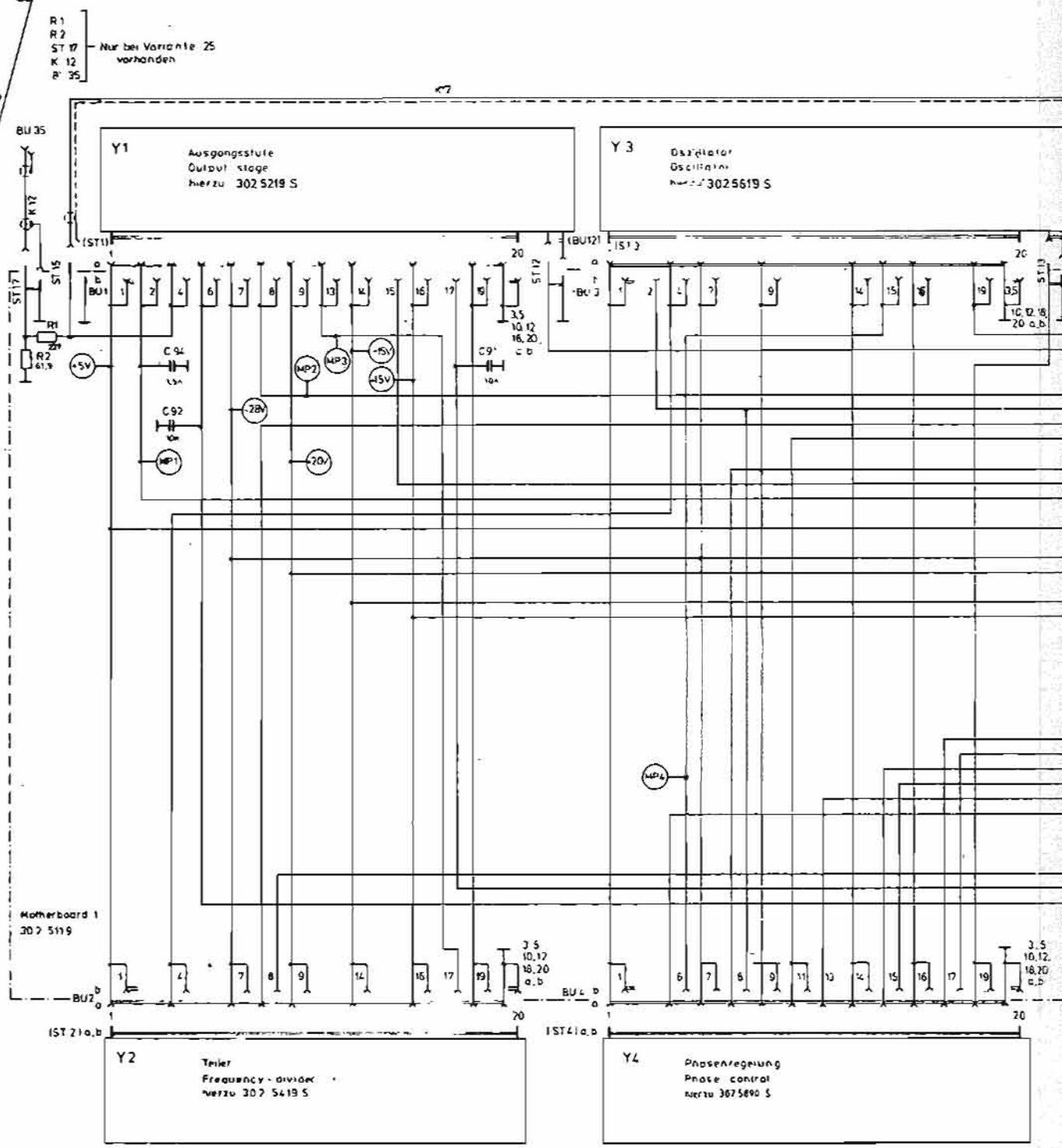
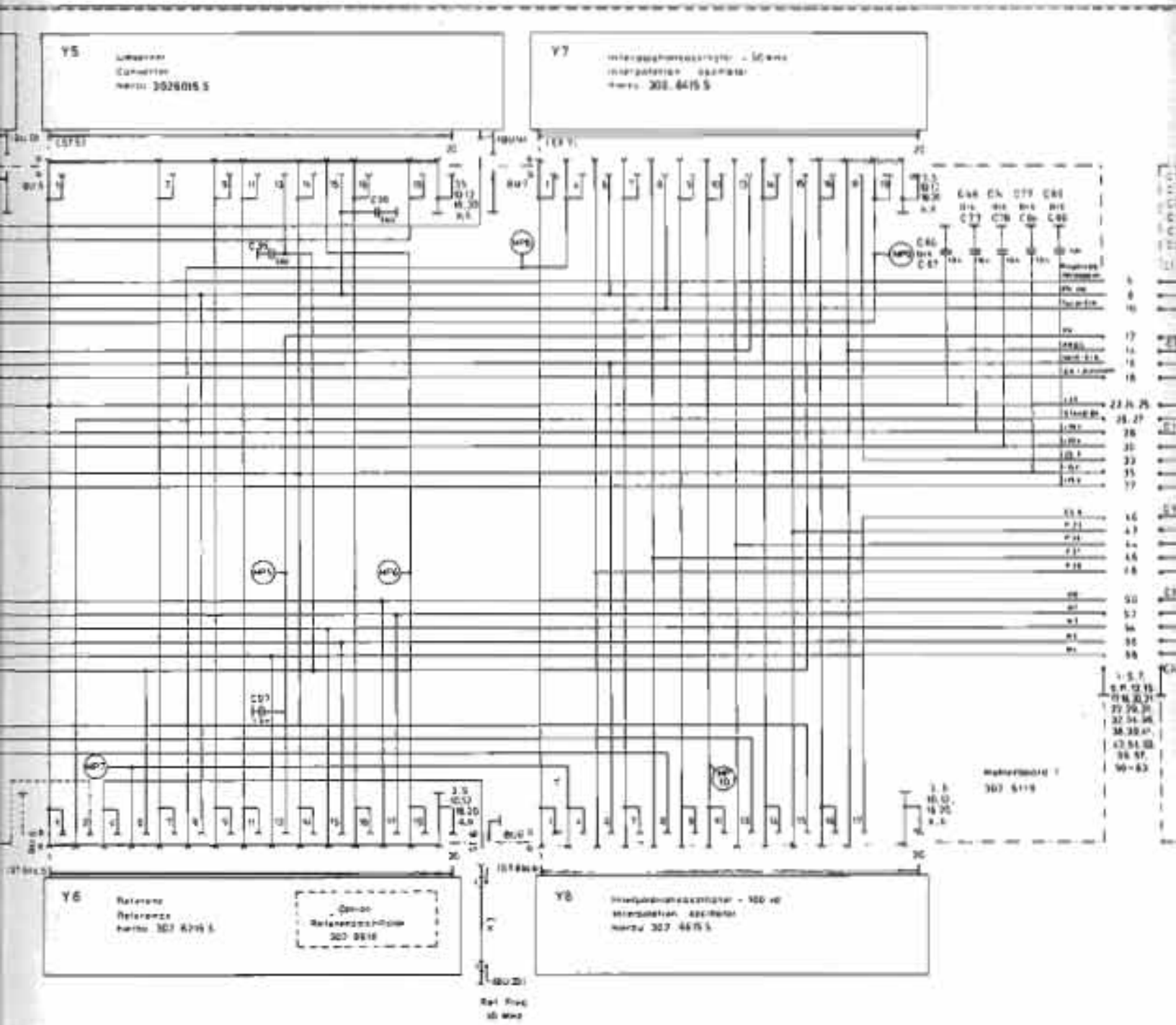
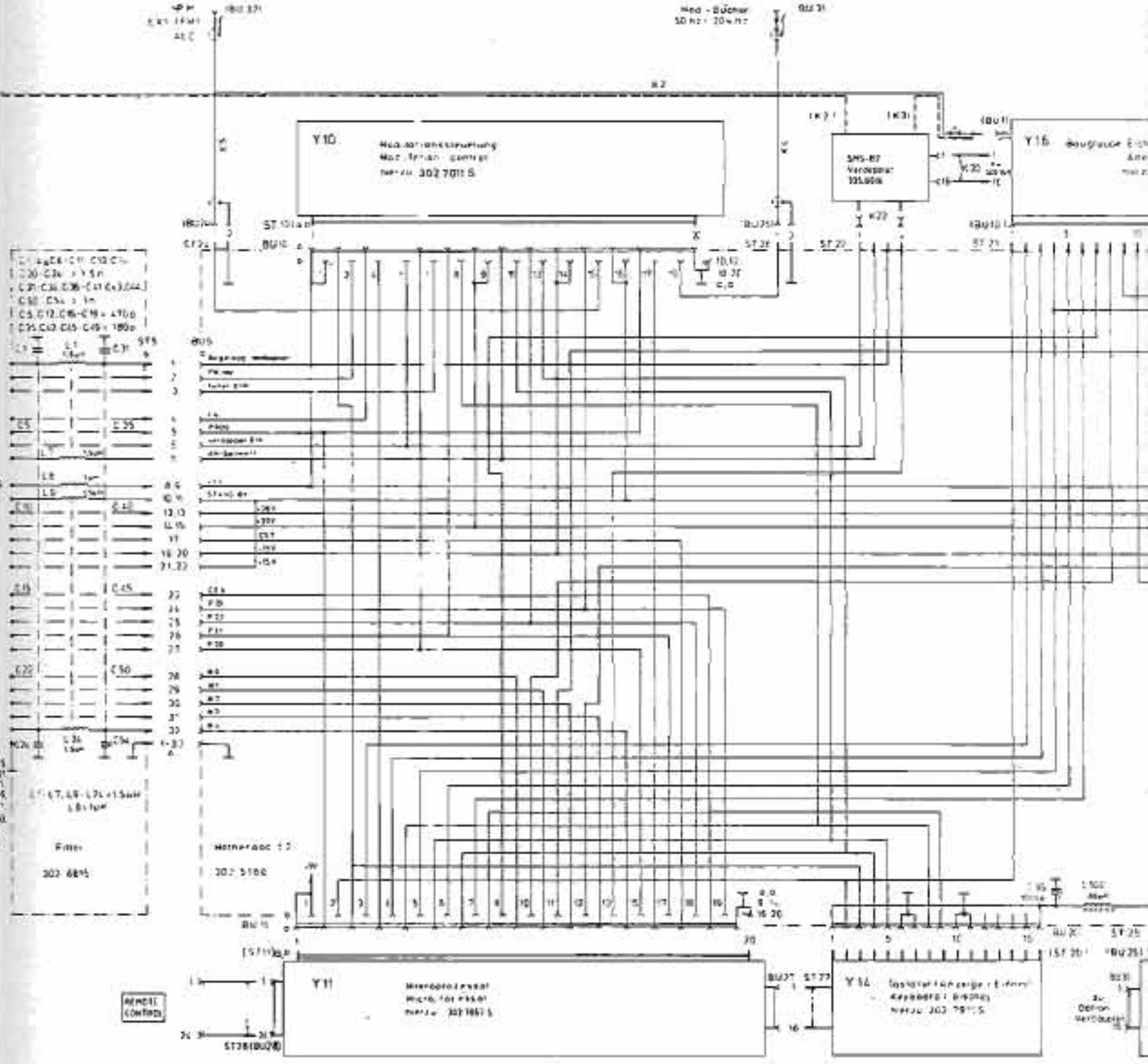
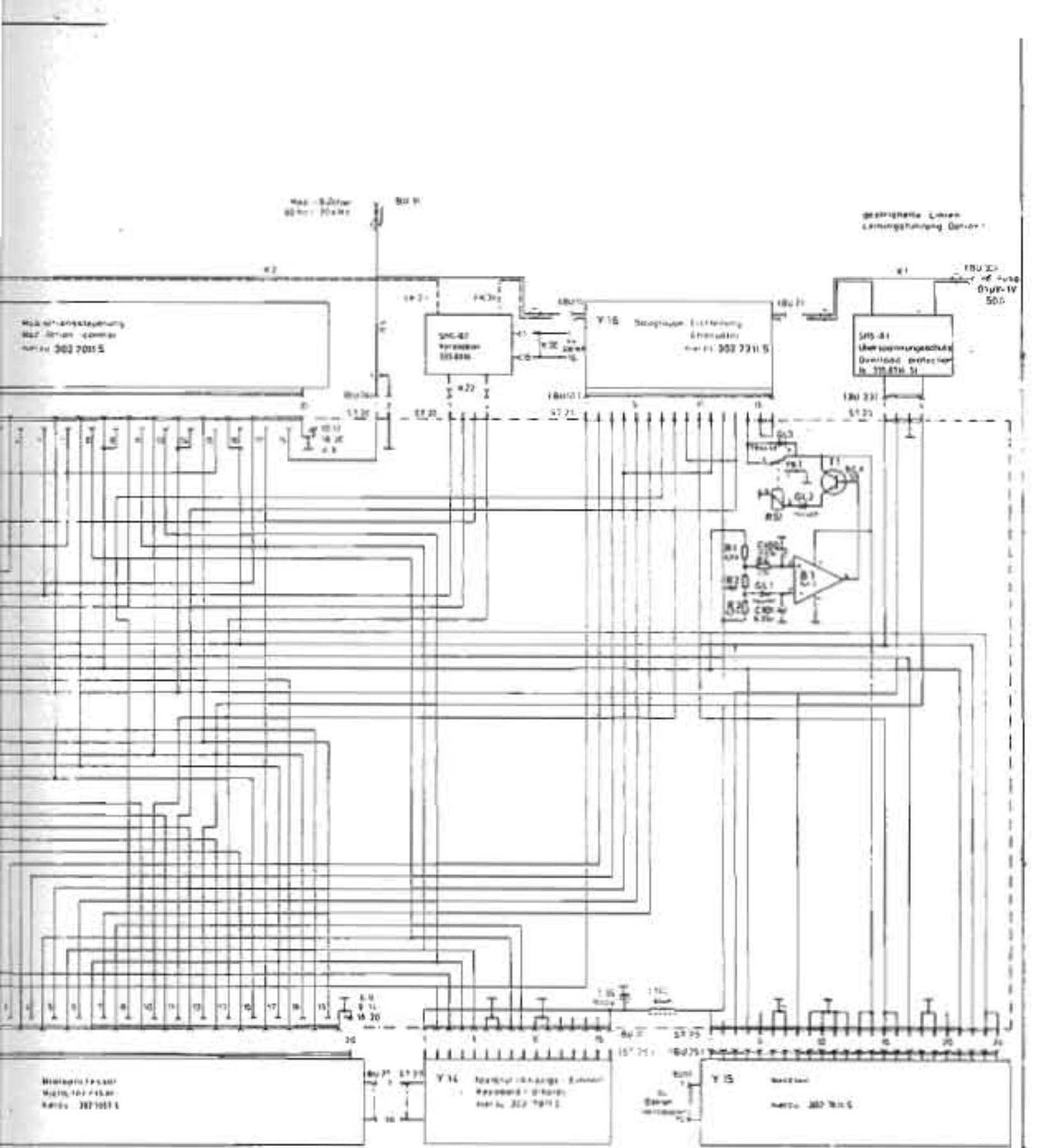

R1
R2
ST 17
K 12
BU 35
Nur bei Variante 25 vorhanden
Y1
Ausgangsstufe
Output stage
hierzu 302 5219 S
Y 3
Oszillator
Oscillator
hierzu 302 5619 S
Motherboard 1
302 5119
Y2
Teiler
Frequency - divider
hierzu 302 5419 S
Y4
Phasenregelung
Phase control
hierzu 307 5890 S


Y5
Y7
Y6
Y8



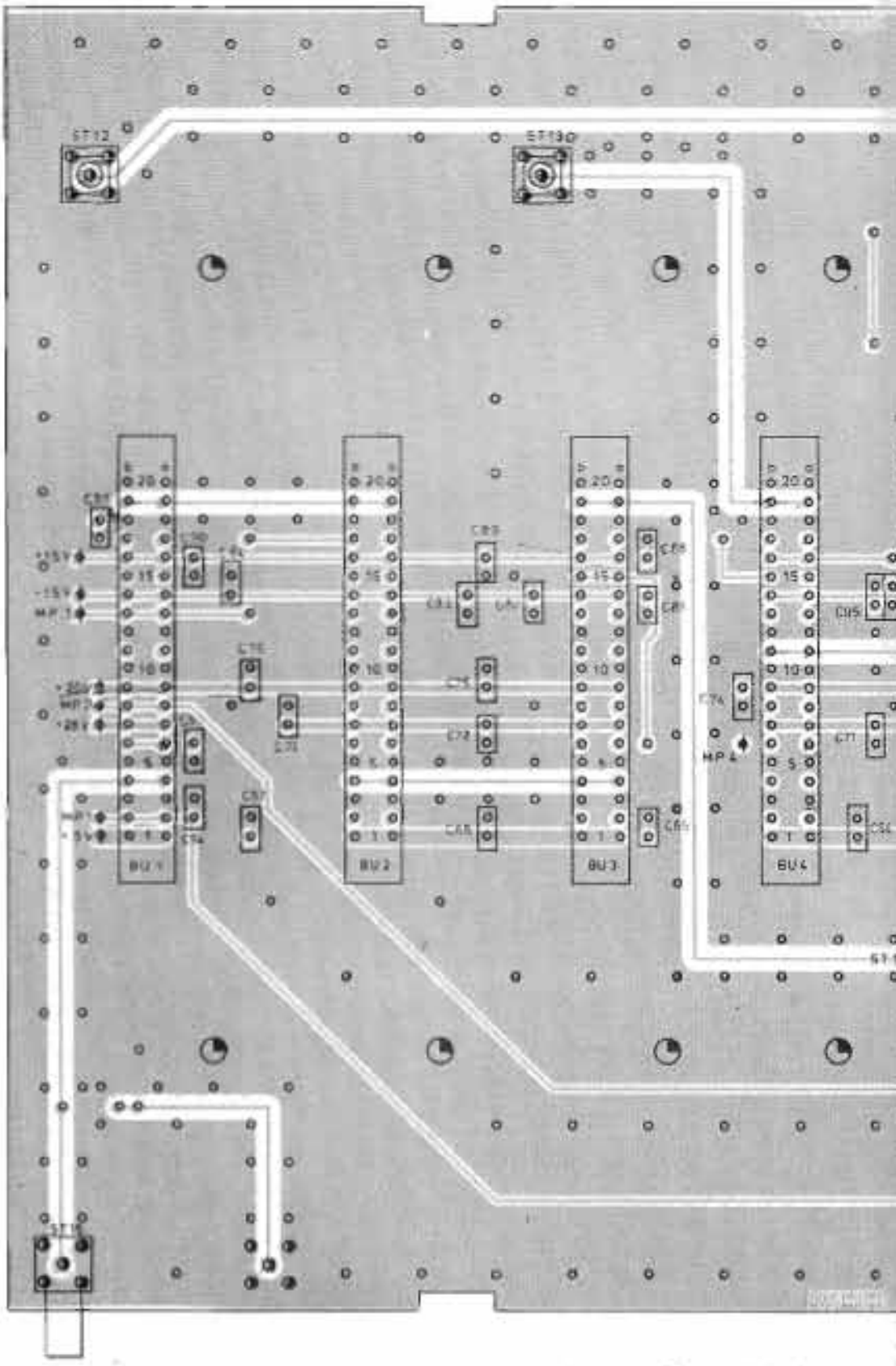
MP1 Sollwert AN
MP2 Regelspannung vom Verdoppler
MP3 Regelspannung der Ausgangsstufe
MP4 Abstimmspannung für Y2
MP5 Modulationsspannung für FM
MP6 HMU - Referenz
MP7 Referenzsignal für Y8
MP8 Referenzsignal für Y7
MP9 Referenzsignal für Y4
MP10 Referenz von Y8 nach Y7



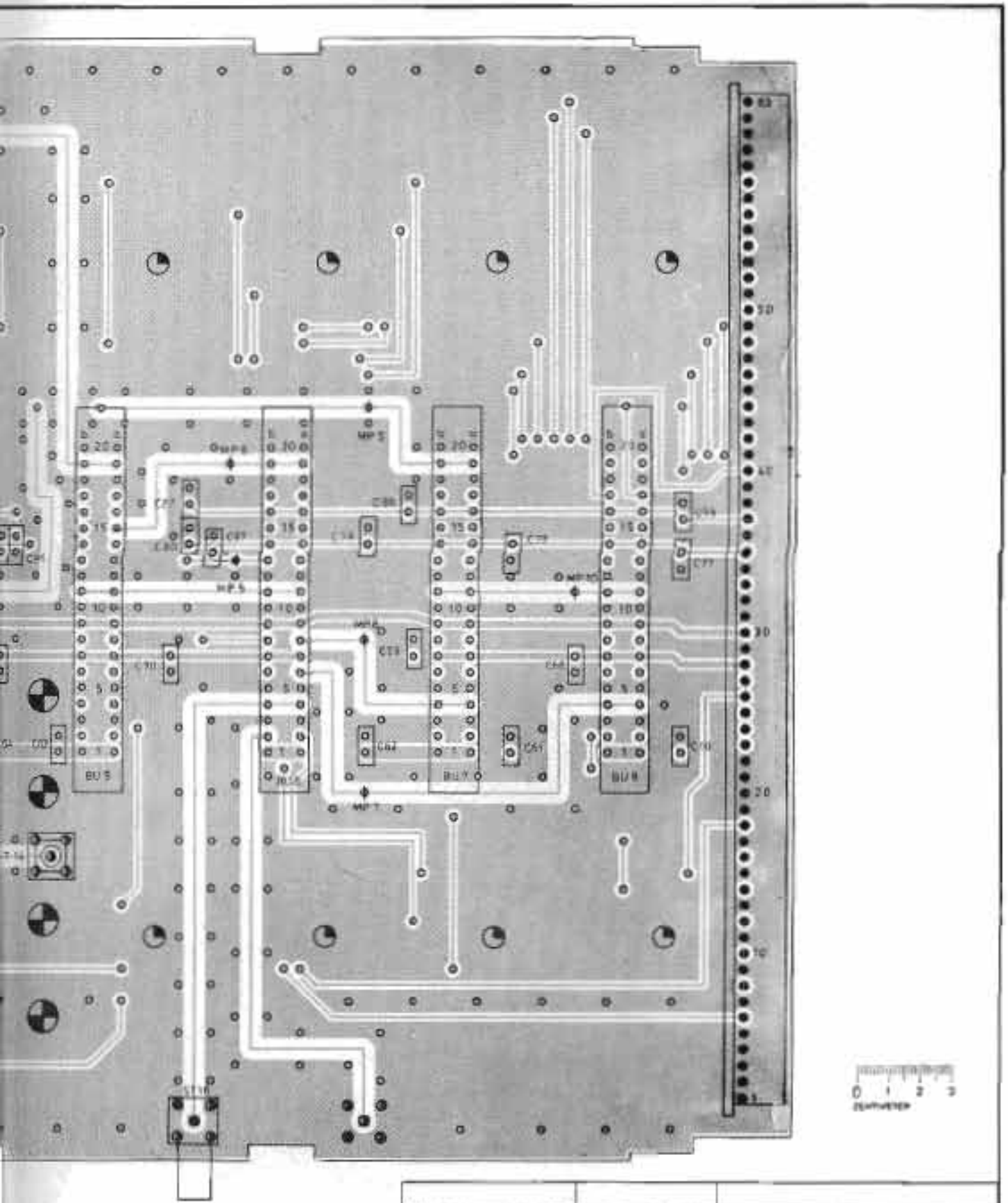
MP 1 Spitzenwert AM
MP 2 Regelspannung vom Verstärker
MP 3 Regelspannung der Amplitudenstufe
MP 4 Abstimmspannung für V 3
MP 5 Modulationsspannung für 4Hz
MP 6 1MHz - Spannung
MP 7 Referenzsignal für V 2
MP 8 Referenzsignal für V 7
MP 9 Referenzsignal für V 6
MP 10 Referenz vom V6 nach V7

			372.2019 S
			302 4012V
			SMS2 Signalgenerator

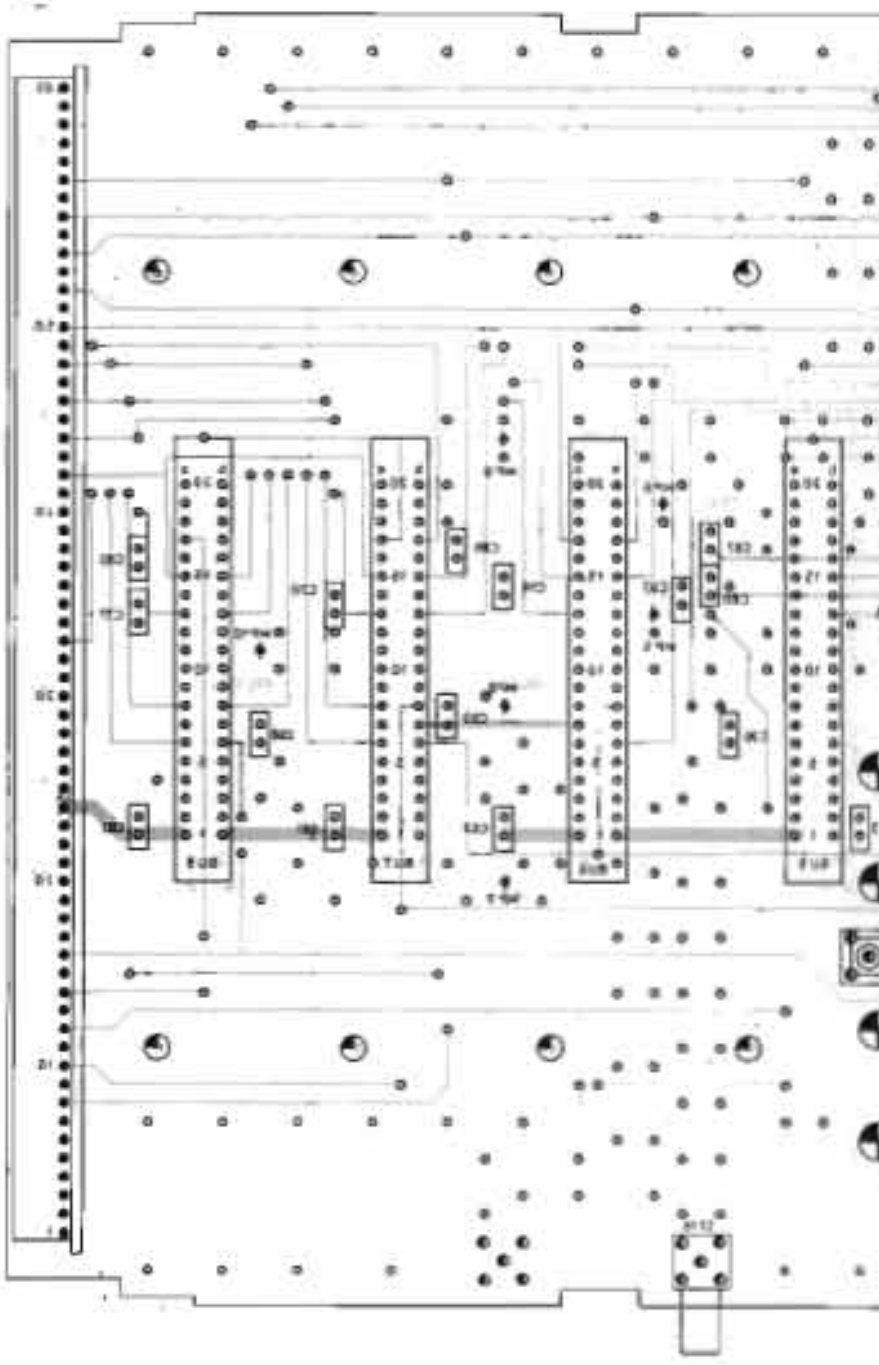
Für diese Zeichnung behalten
wir uns alle Rechte vor



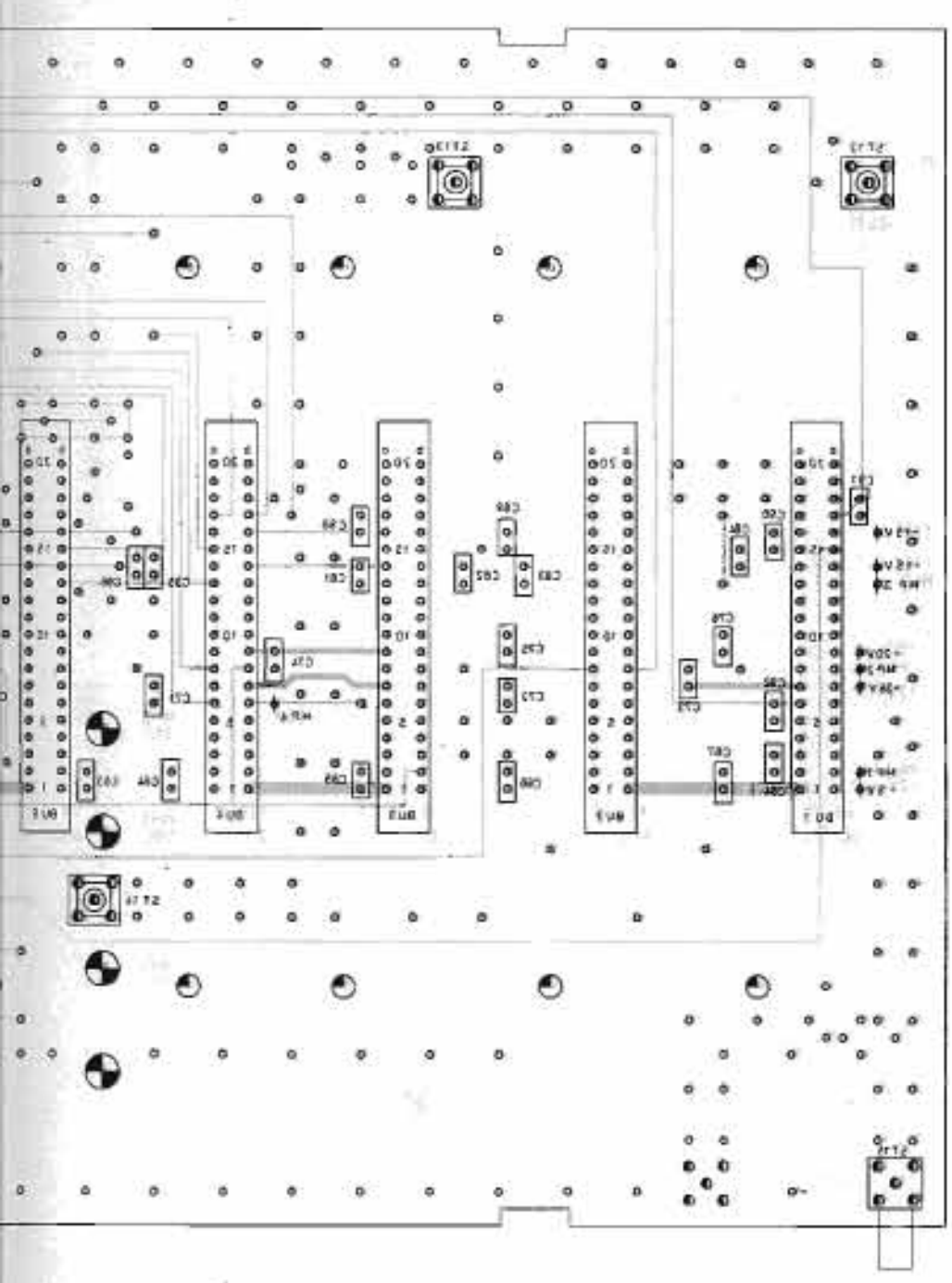
Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



A	21545	10.78	Gn	Maße ohne Toleranzangabe		Maßstab 2 : 1	
B	21701	04.79	Gn			Halbzeug Werkstoff	



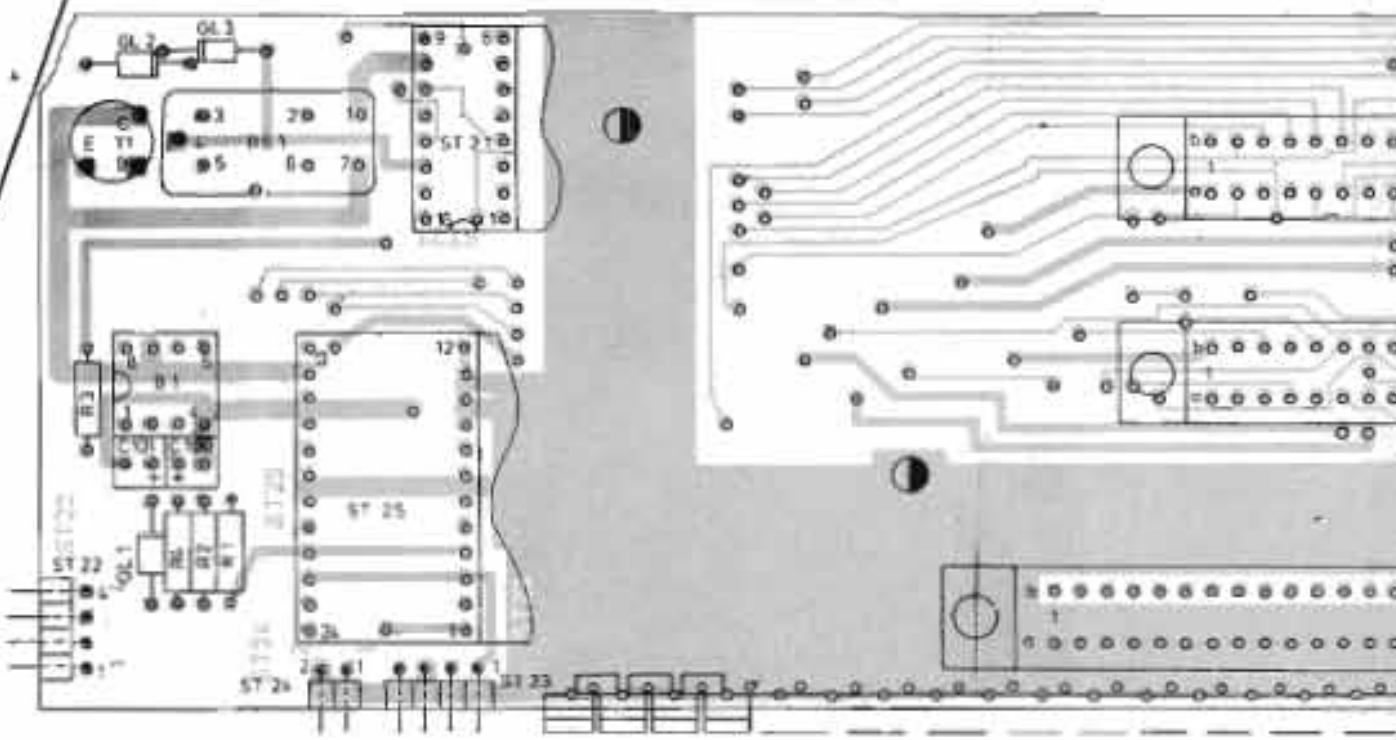
Ansicht und Leitungsführung Lötseite
View of tracks on solder side



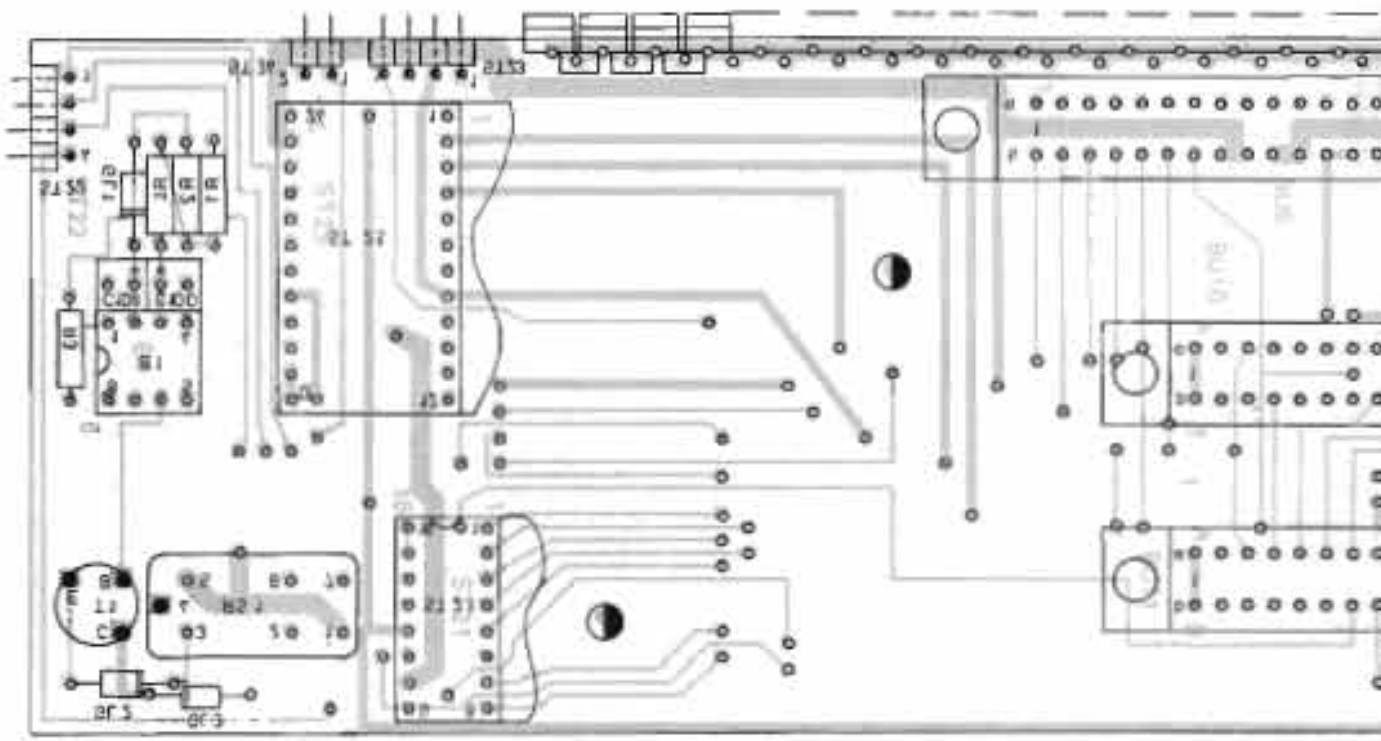
1 2 3 cm

				Maßstab: 2:1	
				Bezeichnung: Motherboard 1	Z
				ROHDE & SCHWARZ	302.5119

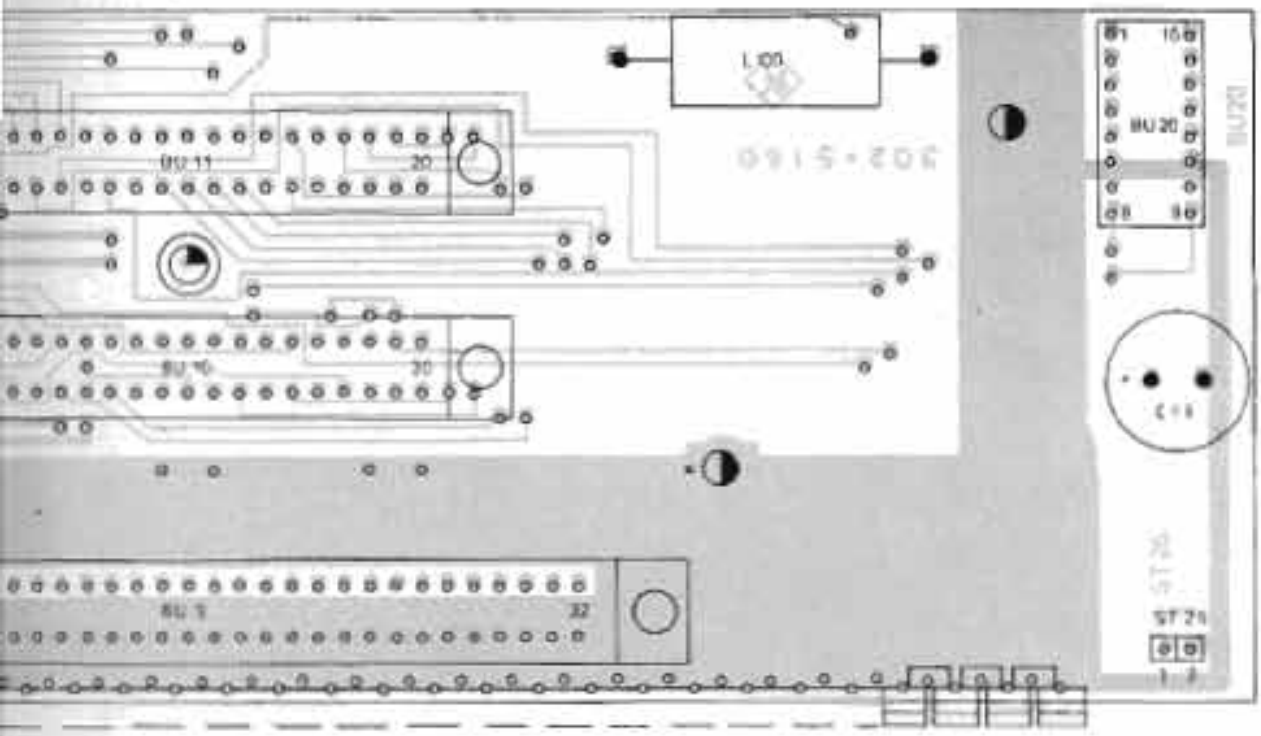
Ansicht und Leitu
View of tracks on



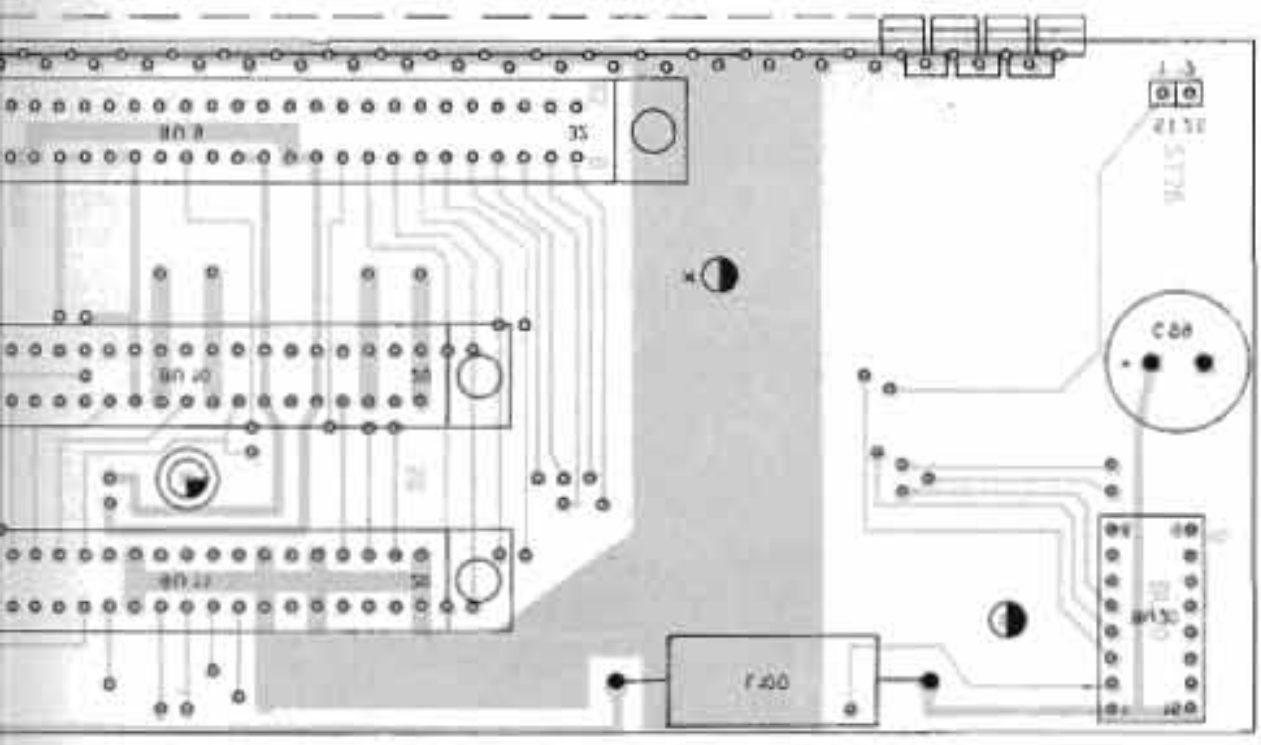
Ansicht und Leitu
View of tracks on



und Leitungsführung Bauteilseite
tracks on component side



und Leitungsführung Lötseite
tracks on solder side



A	24545	10.78	Gn				
B	25170	07.79	Gn				
C	25168	10.79	Gn				
D	25863	01.80	Gn				
E		05.80	Sy	10 M			
F	26488	10.80	Sy		29.7.81	NN	

Motherboard 2

Z

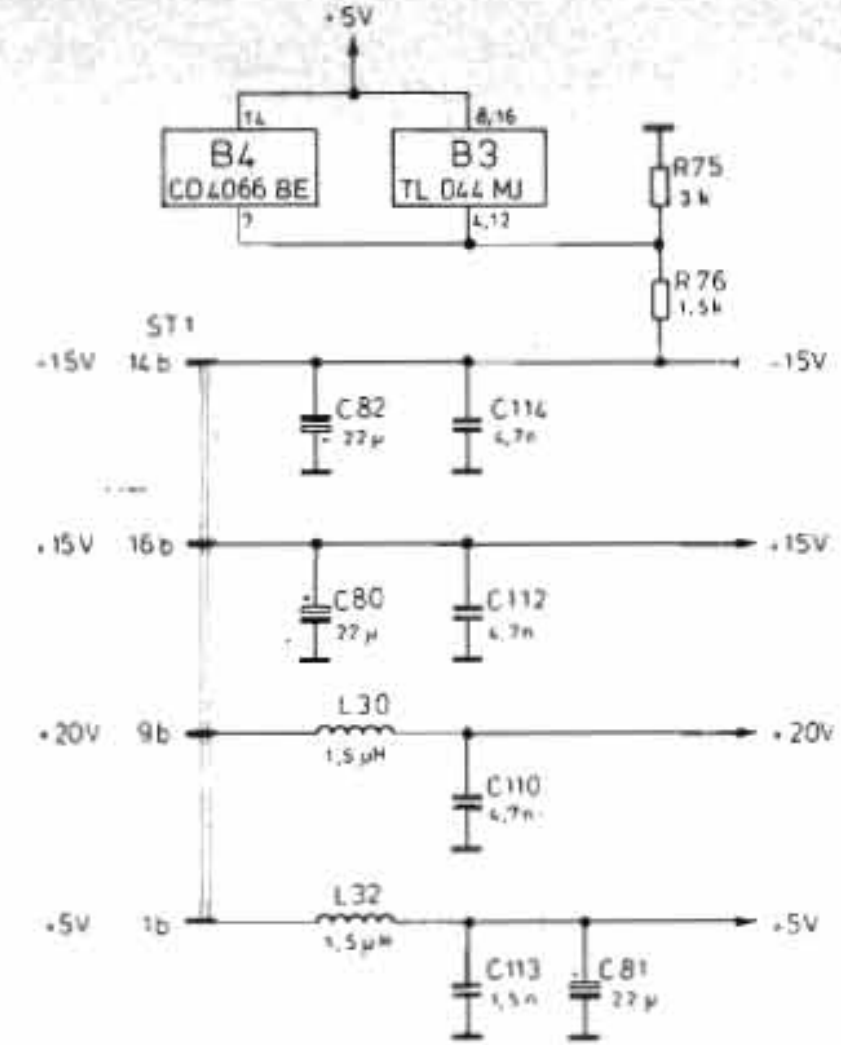
ROHDE & SCHWARZ

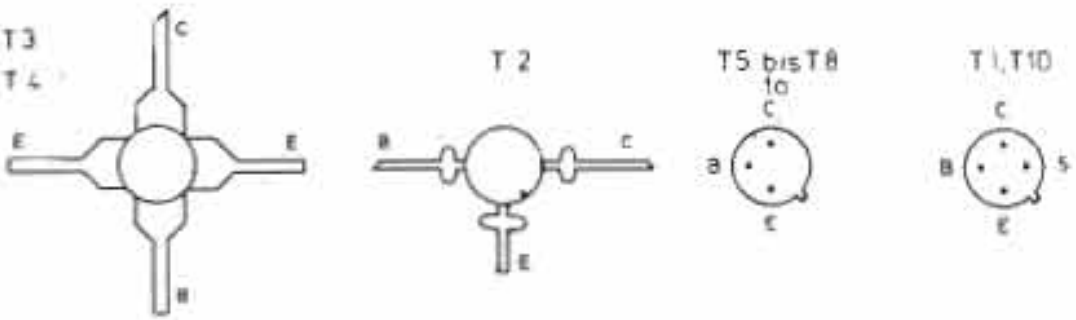
302 5160

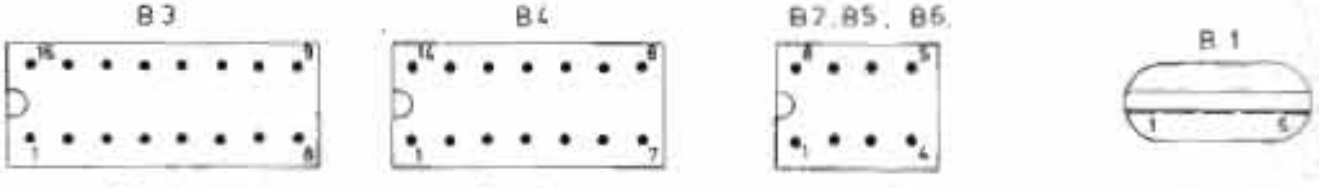
2

SMS

302.4012.9 | 302.4012







Draufsicht
Top view

Draufsicht
Top view

Draufsicht
Top view

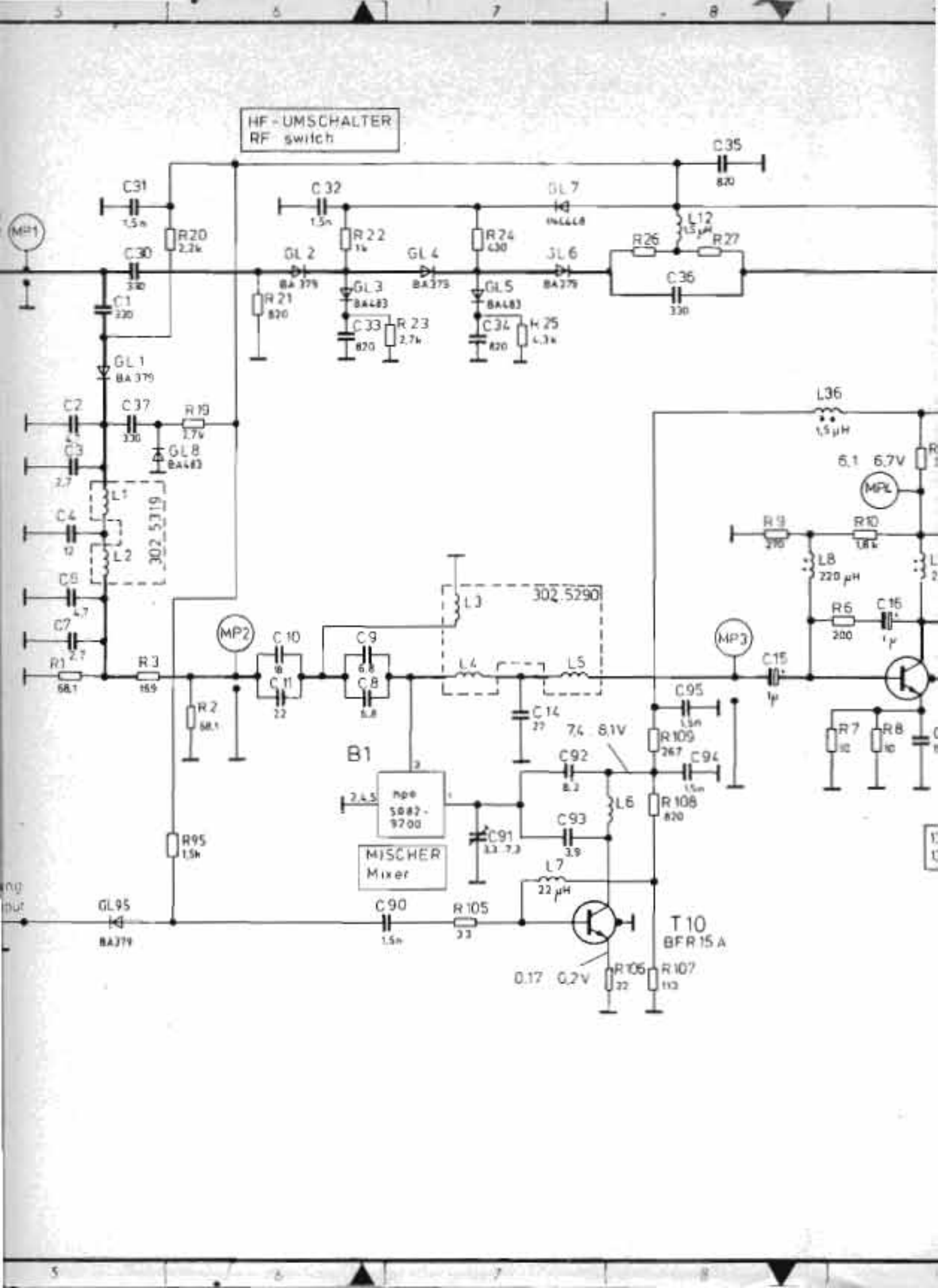
Draufsicht
Top view

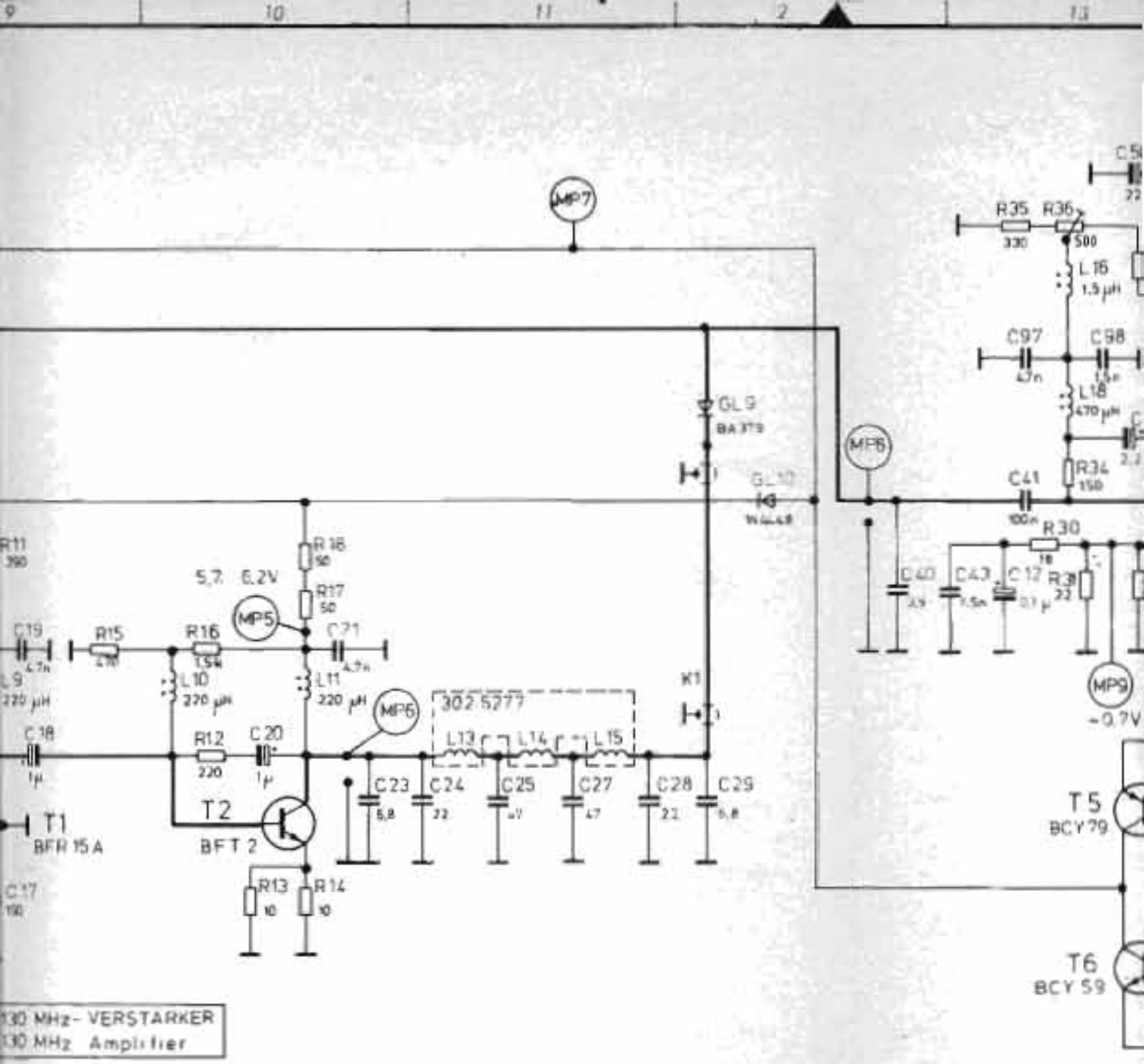
ROHDE & SCHWARZ · MÜNCHEN

A	24 668	02 79	Mu	Gn
B	24 791	04 79	Gn	Sy
C	25 932	03 80	Sy	Sy
D	26 460	12 80	Sy	Gn
E	28 027 - 0282			

F	28113	981	ab	ab
G	29391	12.82	CO	CO
H	29853	05.83	CO	CO
I	30593	10.83	CO	CO
K	31273	04.84	CO	CO

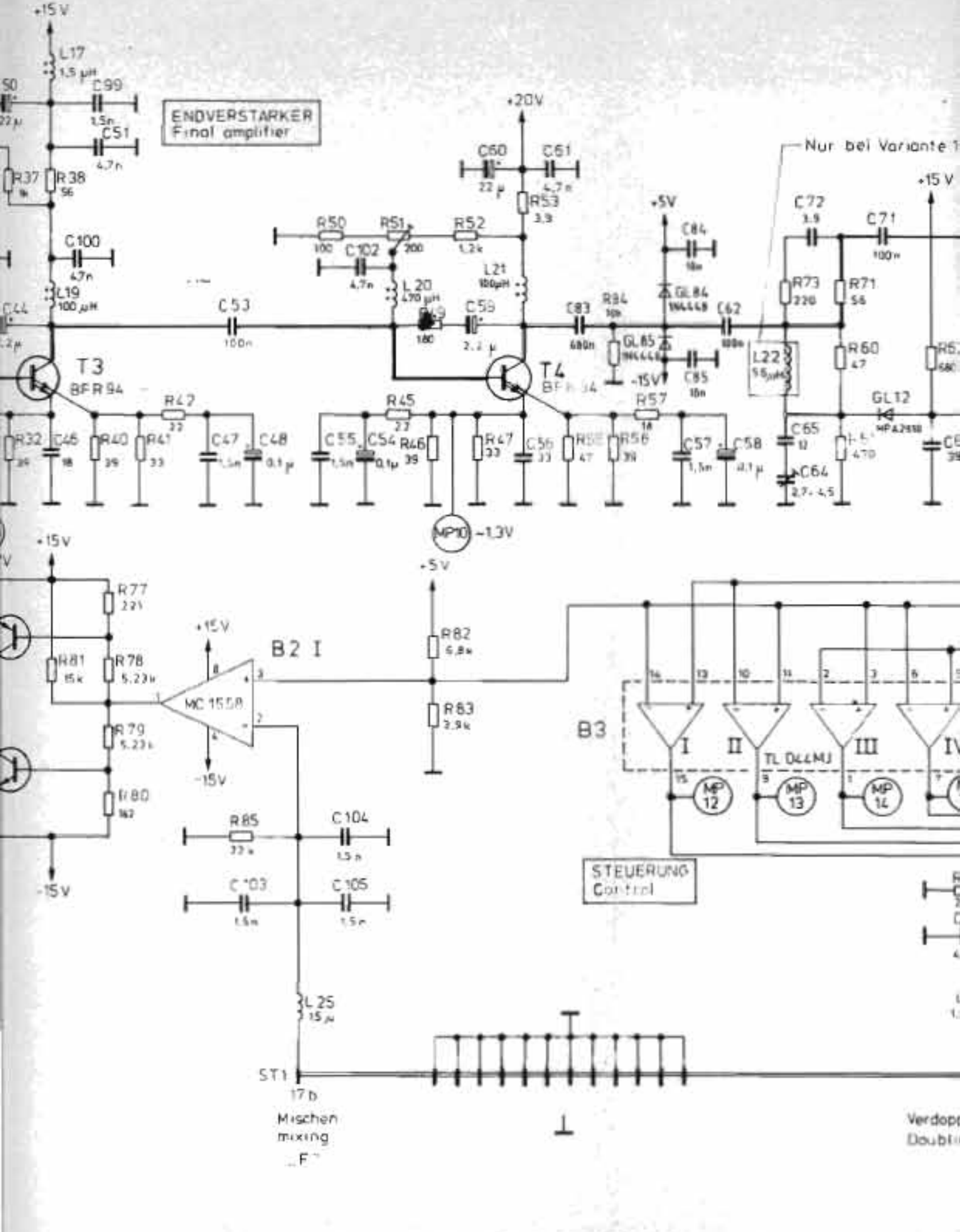
	Sd	06.78

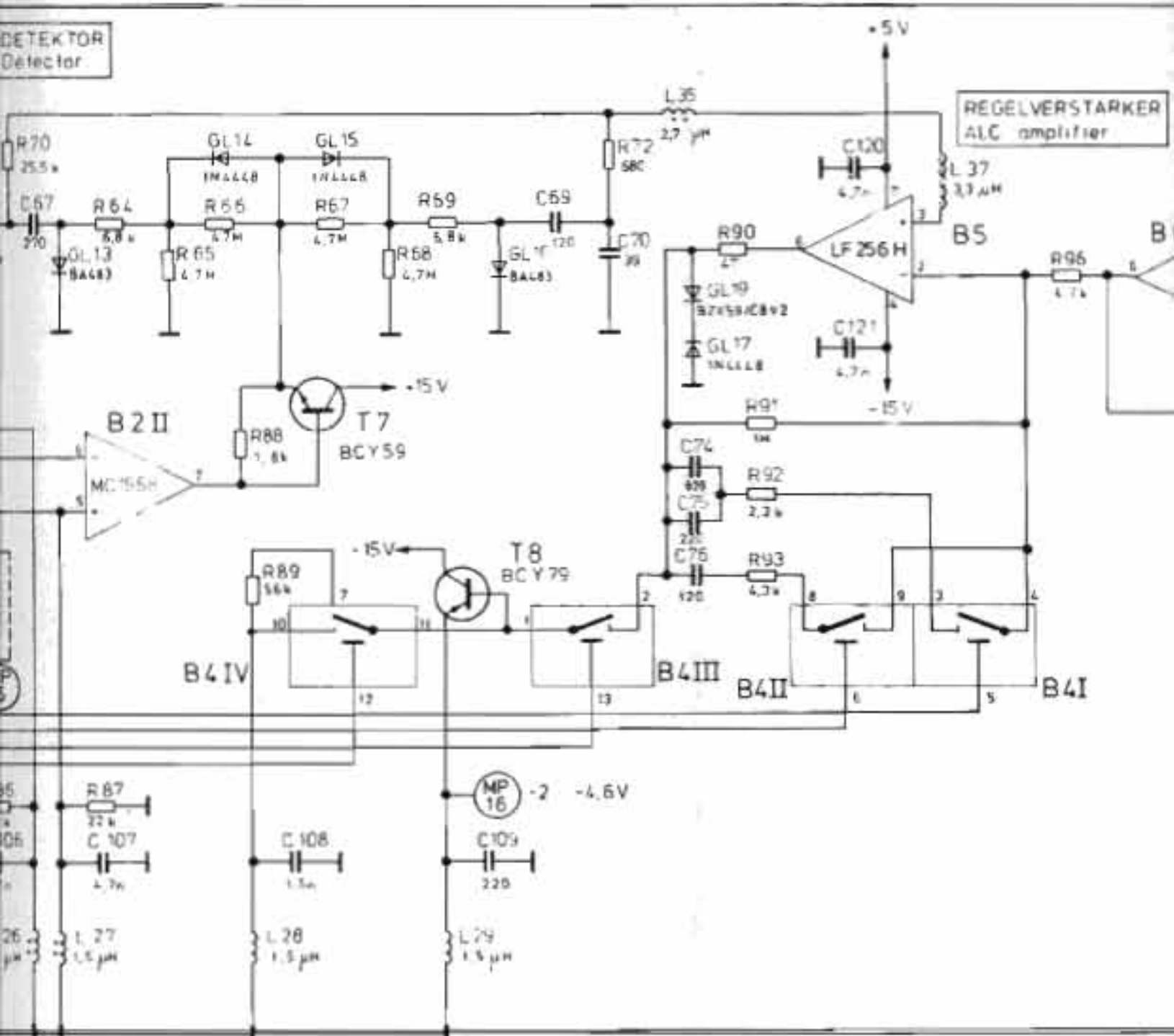

HF - UMSCHALTER
RF switch
MP1
C31
1,5n
R20
2,2k
C30
330
C1
220
C32
1,5n
R22
1k
R24
430
GL 7
1N4448
C35
820
L12
1,5 µH
R26
R27
C36
330
GL 2
BA 379
GL 4
BA379
GL 6
BA379
R21
820
GL 3
BA483
GL 5
BA483
C33
820
R23
2,7k
C34
820
R25
4,3k
GL 1
BA 379
C2
4,7
C37
330
R19
2,7k
GL 8
BA483
C3
2,7
L1
L2
302 5319
C4
12
C5
4,7
C7
2,7
R1
68,1
R3
169
MP2
C10
18
C11
22
C9
6,8
C8
5,8
L3
302.5290
L4
L5
C14
27
R2
68,1
R95
1,5k
B1
2,4,5
npn
5082-
9700
C91
3,3 - 7,3
C92
8,2
C93
3,9
L6
L7
22 µH
MISCHER
Mixer
7,4
8,1V
R109
267
C95
1,5n
C94
1,5n
R108
820
MP3
C15
1µ
L36
1,5 µH
6,1
6,7V
MP4
R9
270
R10
1,8k
L8
220 µH
R6
200
C16
1µ
R7
R8
C90
1,5n
R105
33
GL95
BA379
T10
BFR 15 A
0,17
0,2V
R106
22
R107
113

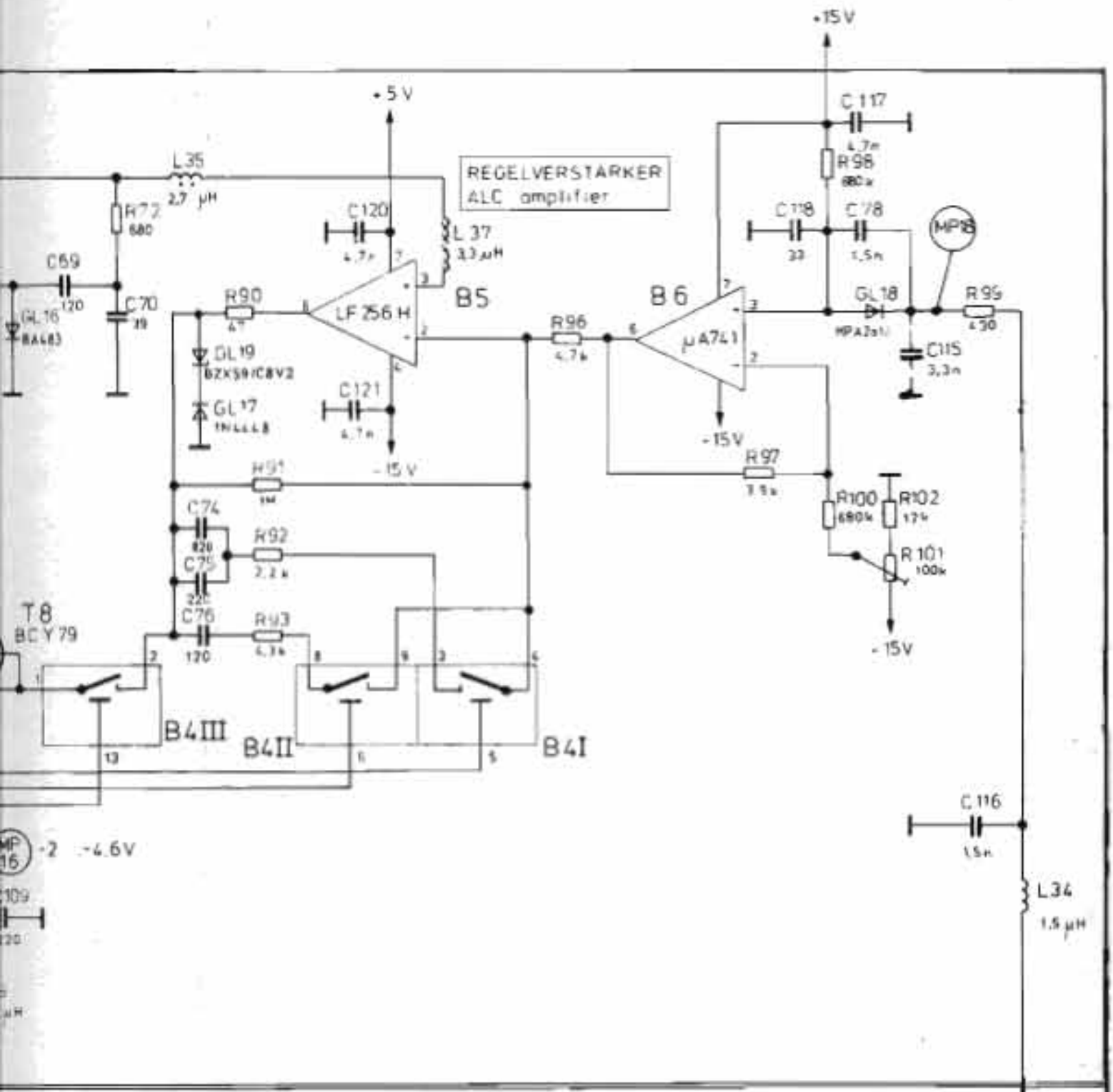


Spannung an den Meßpunkten [V-]
Voltage at test points

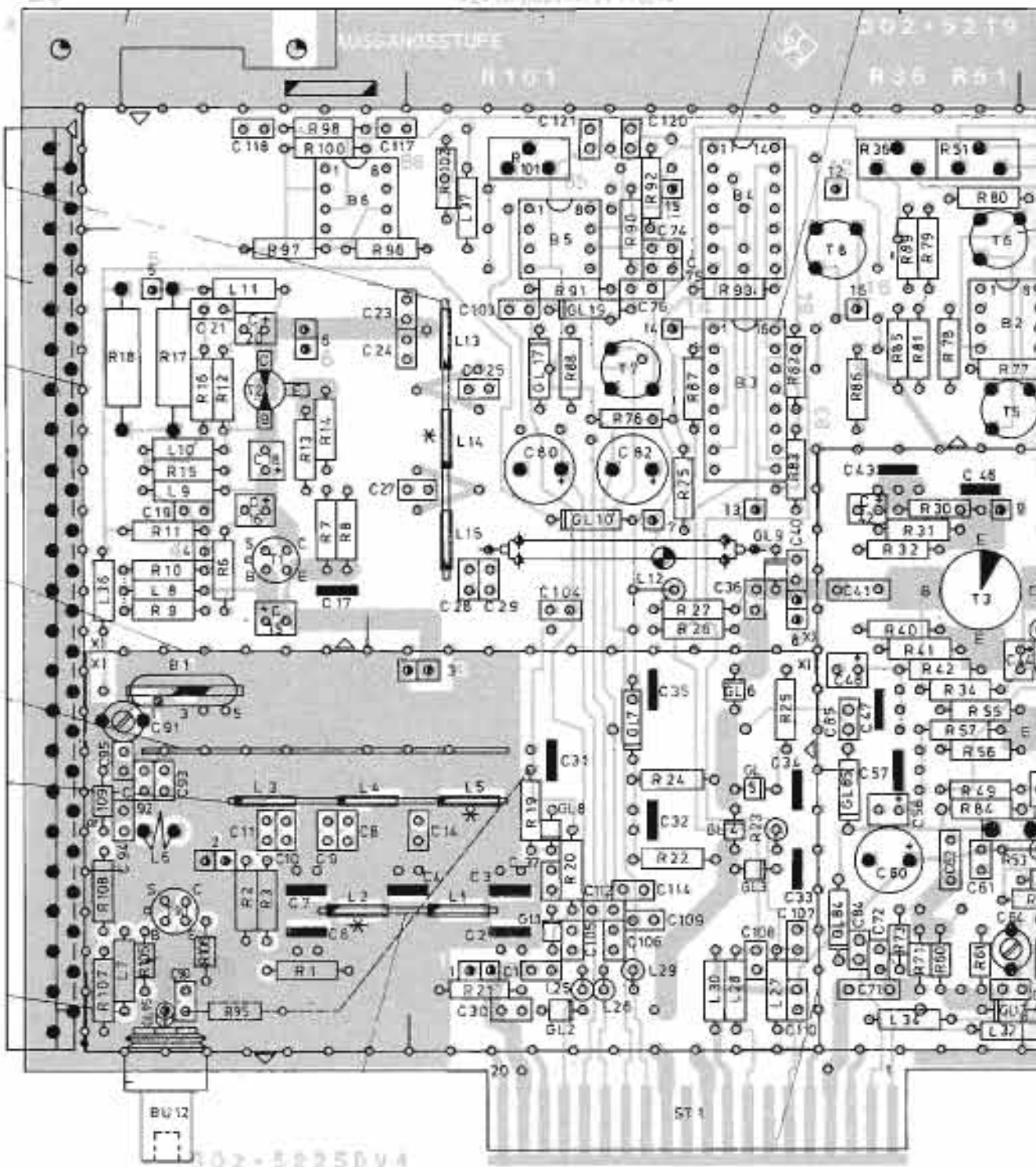
f [MHz]	MP 7	MP 12	MP 13	MP 14	MP 15
0,4 4,9999	+13,5	- 9	+ 4	- 9	+ 4
5 129,9999	+13,5	- 9	+ 4	+ 4	- 9
130 520	-14,5	- 9	+ 4	+ 4	- 9
520,0001 1040	-14,5	+ 4	- 9	+ 4	- 9

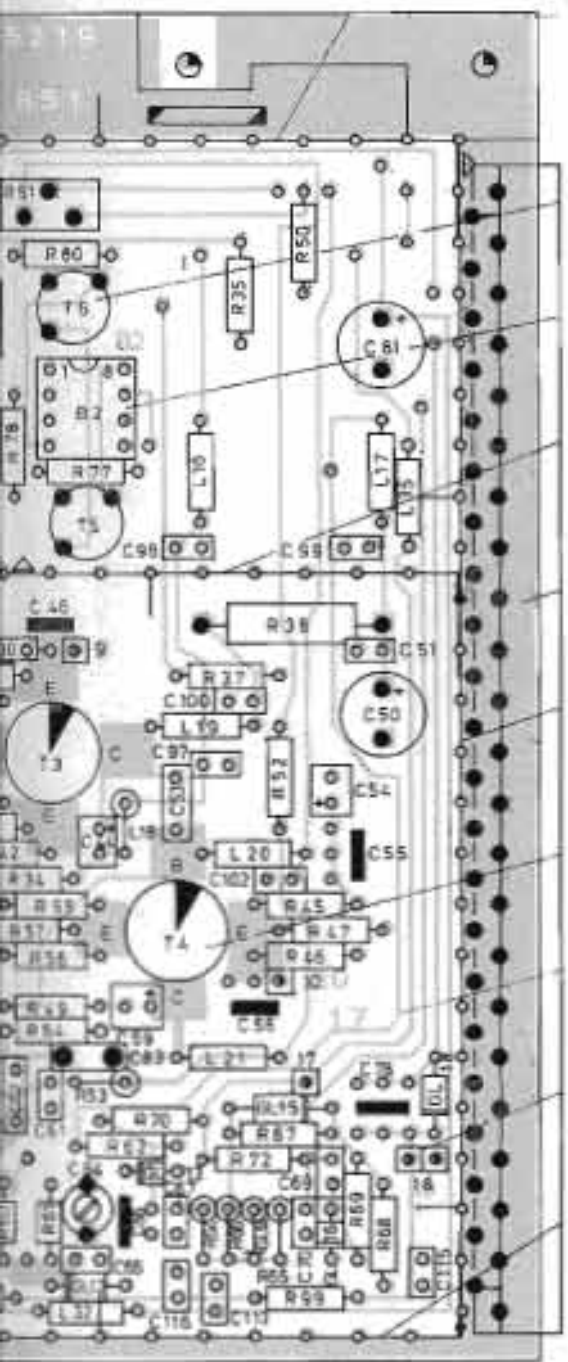

ENDVERSTÄRKER
Final amplifier
+15 V
+20V
+5V
-15V
-1.3V
Nur bei Variante T
T3
BFR 94
T4
B2 I
B3
MC 1558
TL 044MJ
STEUERUNG
Control
ST1
17b
Mischen
mixing
L17
L19
L20
L21
L22
L25
C53
C58
C60
C61
C62
C64
C65
C71
C72
C83
C84
C85
C99
C100
C102
C103
C104
C105
R37
R38
R45
R46
R47
R50
R51
R52
R53
R57
R60
R71
R73
R77
R78
R79
R80
R81
R82
R83
R85
GL 84
GL 85
GL 12
MP 12
MP 13
MP 14
MP10


DETEKTOR
Detector
REGELVERSTÄRKER
ALC amplifier
+5 V
-15 V
+15 V
L35
2,7 µH
L37
3,3 µH
C120
R70
25,5 k
GL14
GL15
1N4448
R72
68C
C67
270
R64
6,8 k
R65
4,7 M
R66
4,7 M
R67
4,7 M
R68
4,7 M
R69
5,6 k
C69
120
C70
39
GL13
BA483
GL16
BA483
R90
LF 356 H
B5
GL19
BZX55/C8V2
GL17
1N4448
C121
R96
4,7 k
R91
1M
C74
820
C75
220
R92
2,2 k
C76
120
R93
4,3 k
T7
BCY59
R88
1,8 k
B2II
MC1556
T8
BCY79
R89
564
B4IV
B4III
B4II
B4I
MP 16
-2
-4,6V
R87
22 k
C107
4,7n
C108
1,5n
C109
220
L27
1,5 µH
L28
1,5 µH
L29
1,5 µH
15b
5b
AM-langs
AM slow
"H"
0b
Regelspg
(Verdoppeln)
Control voltage
(Umschlag)
13b
Regelspg
Control voltage
Stromlauf zu
Ausgangsstufe
Output section



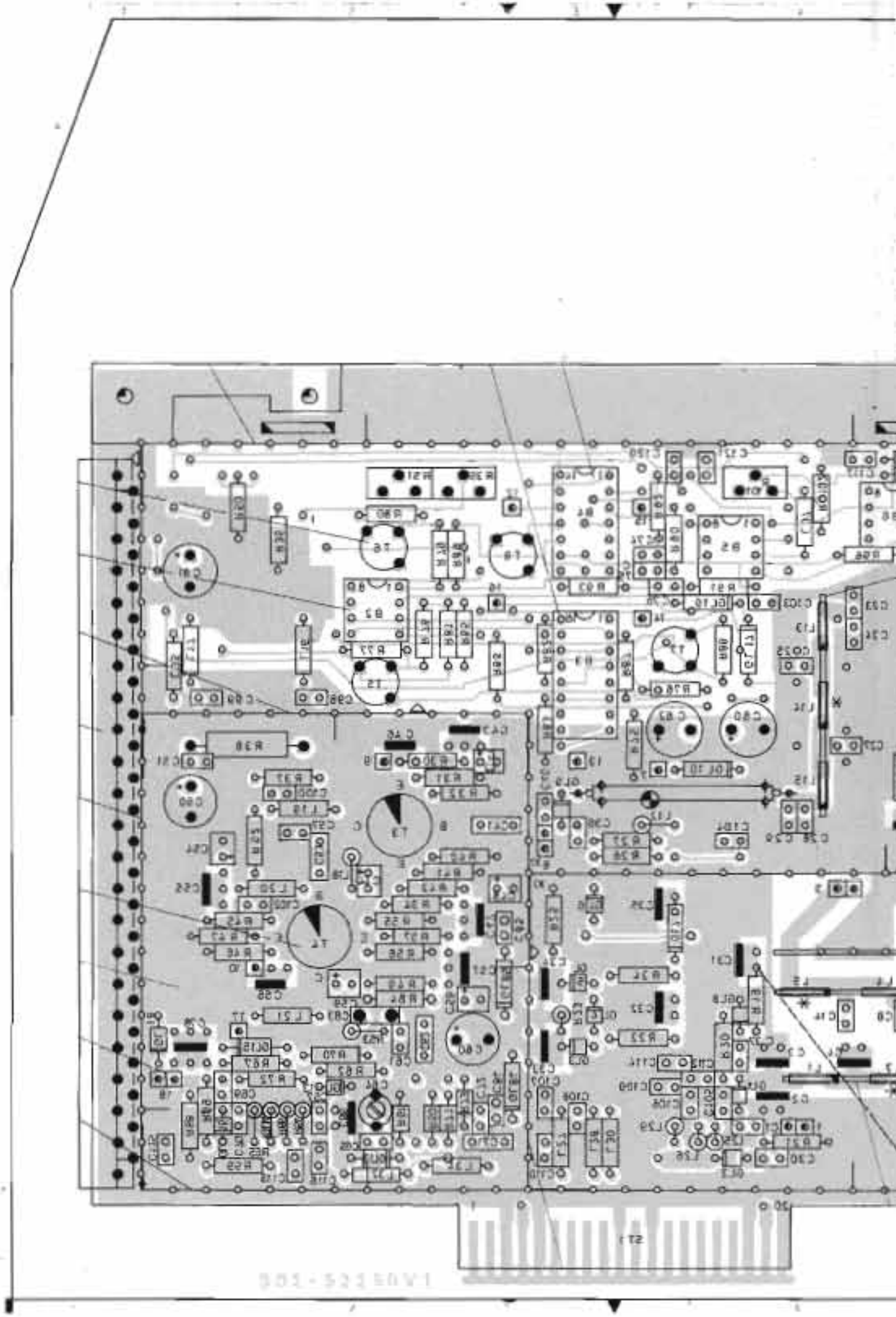
Stromlauf zu	Ausgangsstufe Output section	Z	Zeichn. Nr. 302.5219 S 302.4012 V / 302.4012

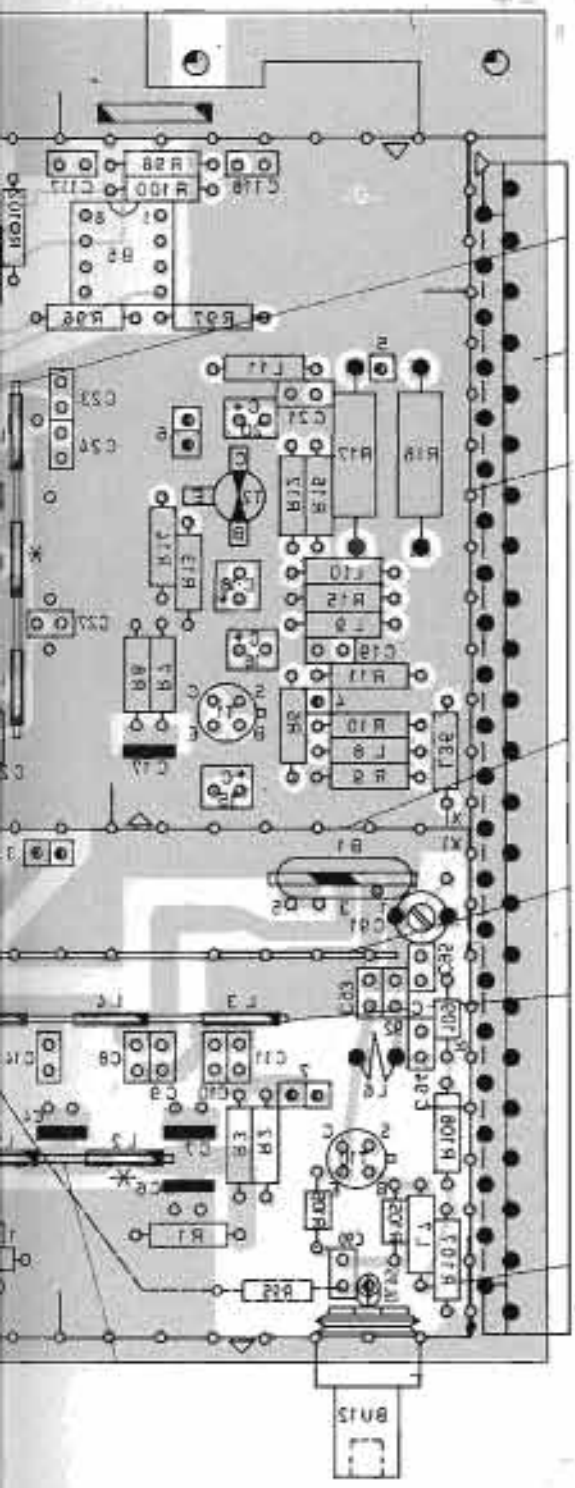

AUSGANGSSTUFE
R101
R36 R51
302-5225DV4
BU12
ST1



Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

T 29391 10.82 lb L 29853 4.83 lb		2:1	
	TGM 10.82 lb	Ausgangsstufe Output stage	2
	ROHDE&SCHWARZ SMS	302.5219	2
		Typ 302.4012V	302.4917

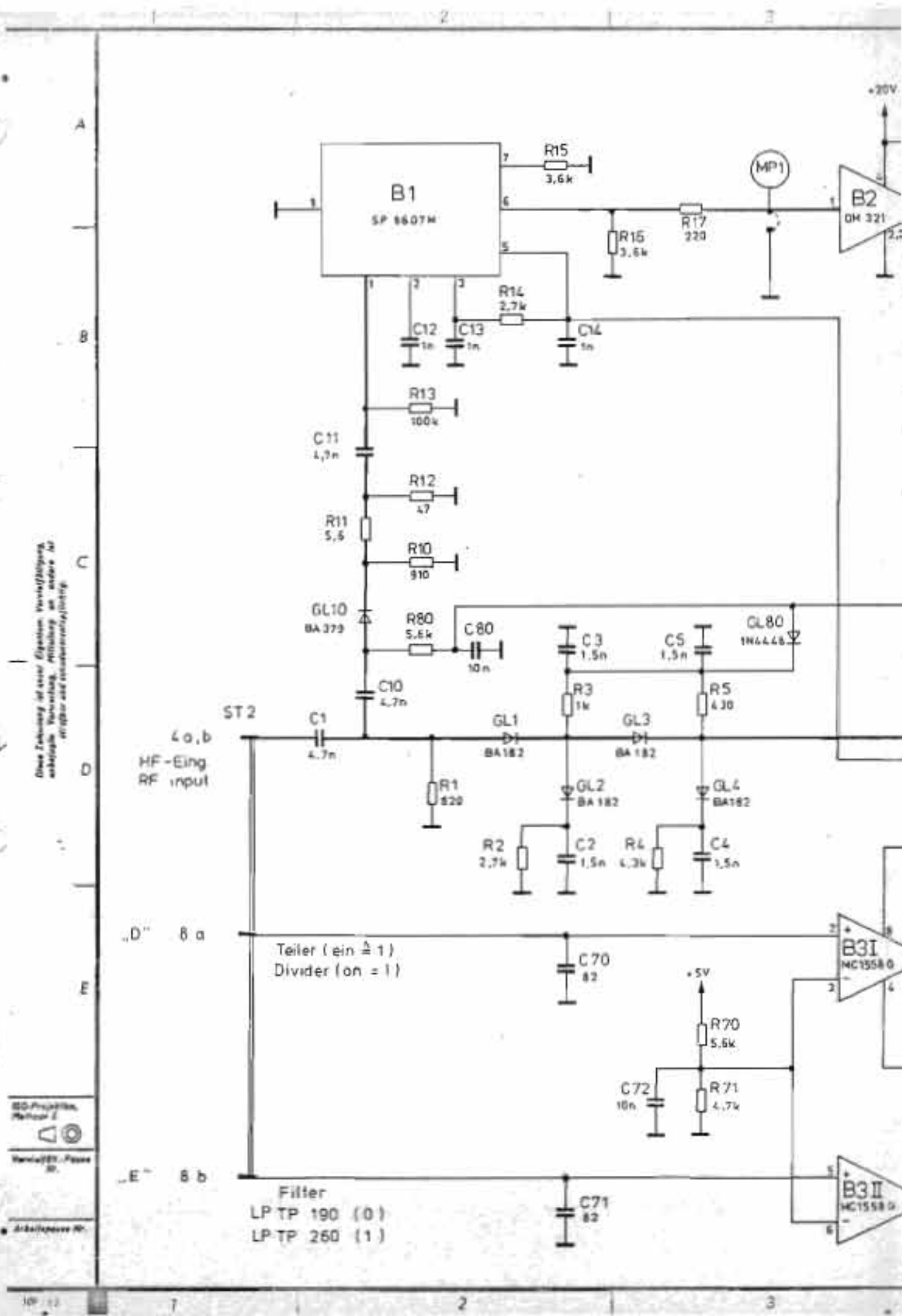


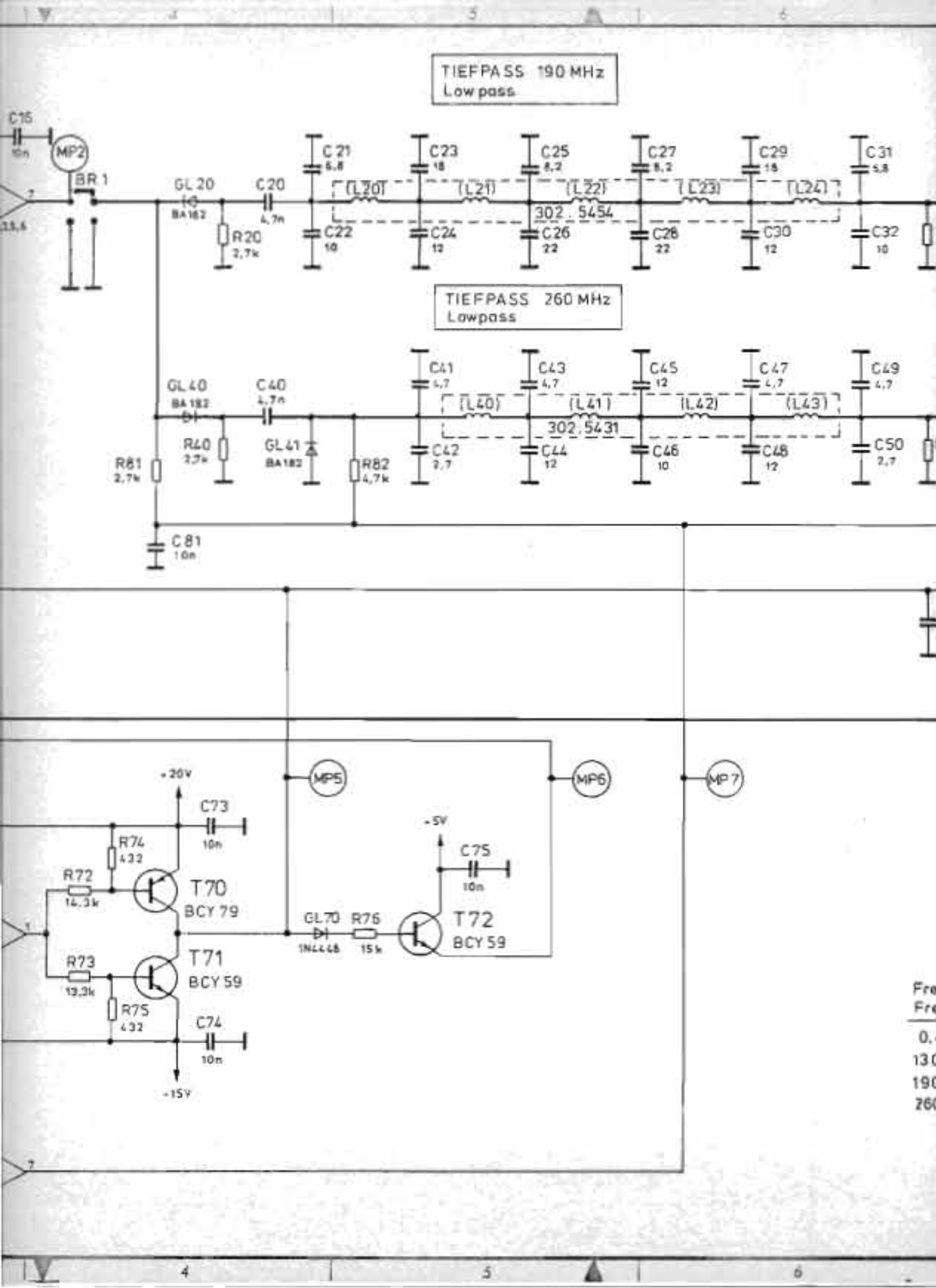


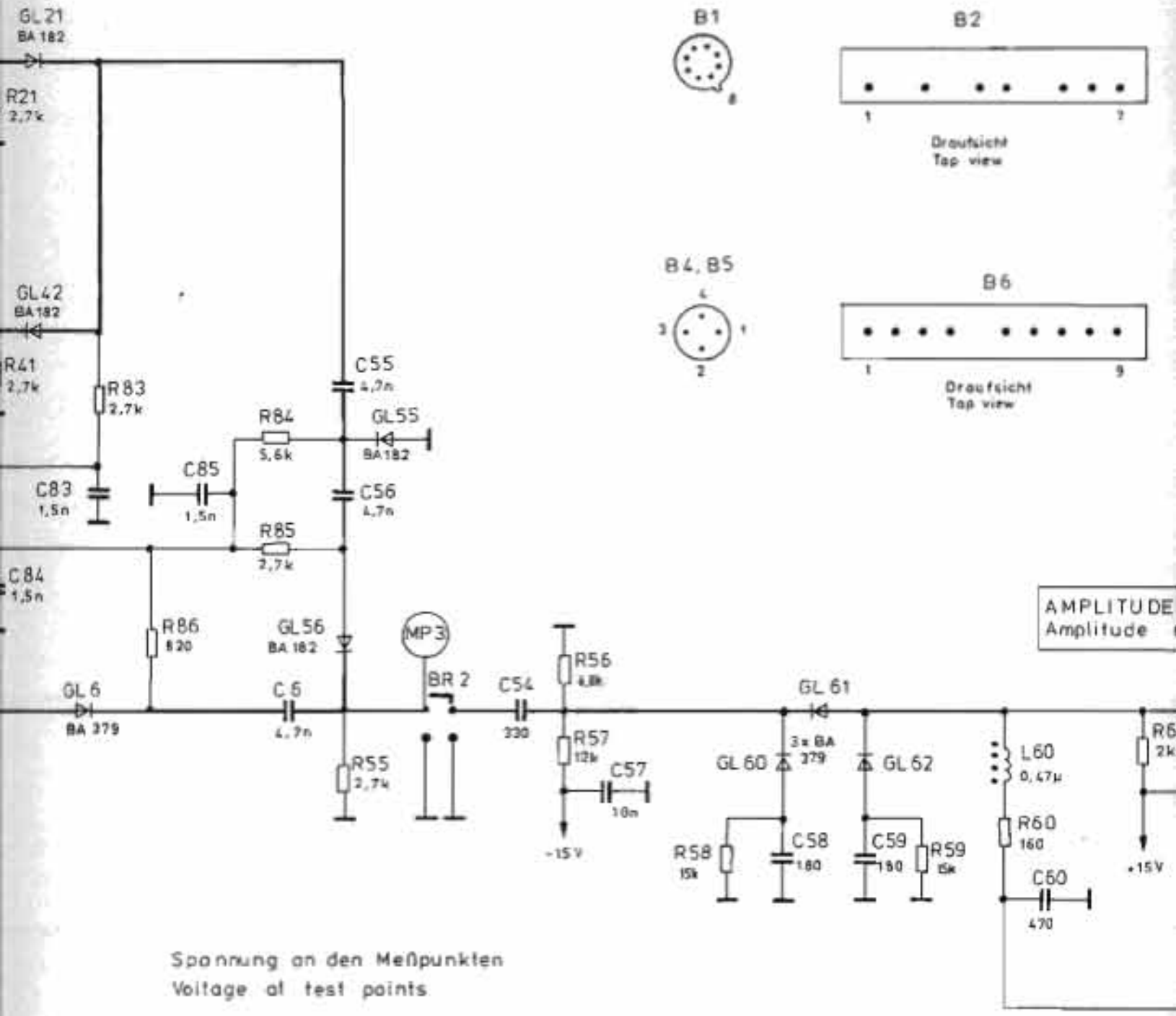
Ansicht und Leitungsführung Lotseite
View of tracks on solder side

1 2 3 cm

I 29391 10.82 lb L 29853 6.83 ib			
IGM 10.82 lb	Ausgangsstufe Output stage		Z
ROHDE & SCHWARZ	302.5219		3
	302.4012V	302.4012	


B1
SP 8607M
R15
3,6k
R16
3,6k
R17
220
MP1
B2
OM 321
+20V
R14
2,7k
C12
1n
C13
1n
C14
1n
R13
100k
C11
4,7n
R12
47
R11
5,6
R10
910
GL10
BA 379
R80
5,6k
C80
10n
C3
1,5n
C5
1,5n
GL80
1N4448
C10
4,7n
R3
1k
R5
430
ST 2
4 a,b
HF-Eing
RF input
C1
4,7n
GL1
BA 182
GL3
BA 182
R1
820
GL2
BA 182
GL4
BA 182
R2
2,7k
C2
1,5n
R4
4,3k
C4
1,5n
„D" 8 a
Teiler (ein ≙ 1)
Divider (on = 1)
C70
82
B3I
NE5558 D
+5V
R70
5,6k
C72
10n
R71
4,7k
„E" 8 b
Filter
LP TP 190 (0)
LP TP 260 (1)
C71
82
B3 II
NE5558 D


TIEFPASS 190 MHz
Low pass
C15
10n
MP2
BR 1
GL20
BA182
C20
4,7n
R20
2,7k
C21
6,8
C23
18
C25
8,2
C27
8,2
C29
18
C31
6,8
(L20)
(L21)
(L22)
(L23)
(L24)
302.5454
C22
10
C24
12
C26
22
C28
22
C30
12
C32
10
TIEFPASS 260 MHz
Lowpass
GL40
BA182
C40
4,7n
R40
2,7k
GL41
BA182
R81
2,7k
R82
4,7k
C41
4,7
C43
4,7
C45
12
C47
4,7
C49
4,7
(L40)
(L41)
(L42)
(L43)
302.5431
C42
2,7
C44
12
C46
10
C48
12
C50
2,7
C81
10n
+20V
C73
10n
R74
432
R72
14,3k
T70
BCY 79
R73
13,3k
T71
BCY 59
R75
432
C74
10n
-15V
MP5
MP6
MP7
+5V
C75
10n
GL70
1N4448
R76
15k
T72
BCY 59
Fre
Fre
0,
130
190
260



Spannung an den Meßpunkten
Voltage at test points

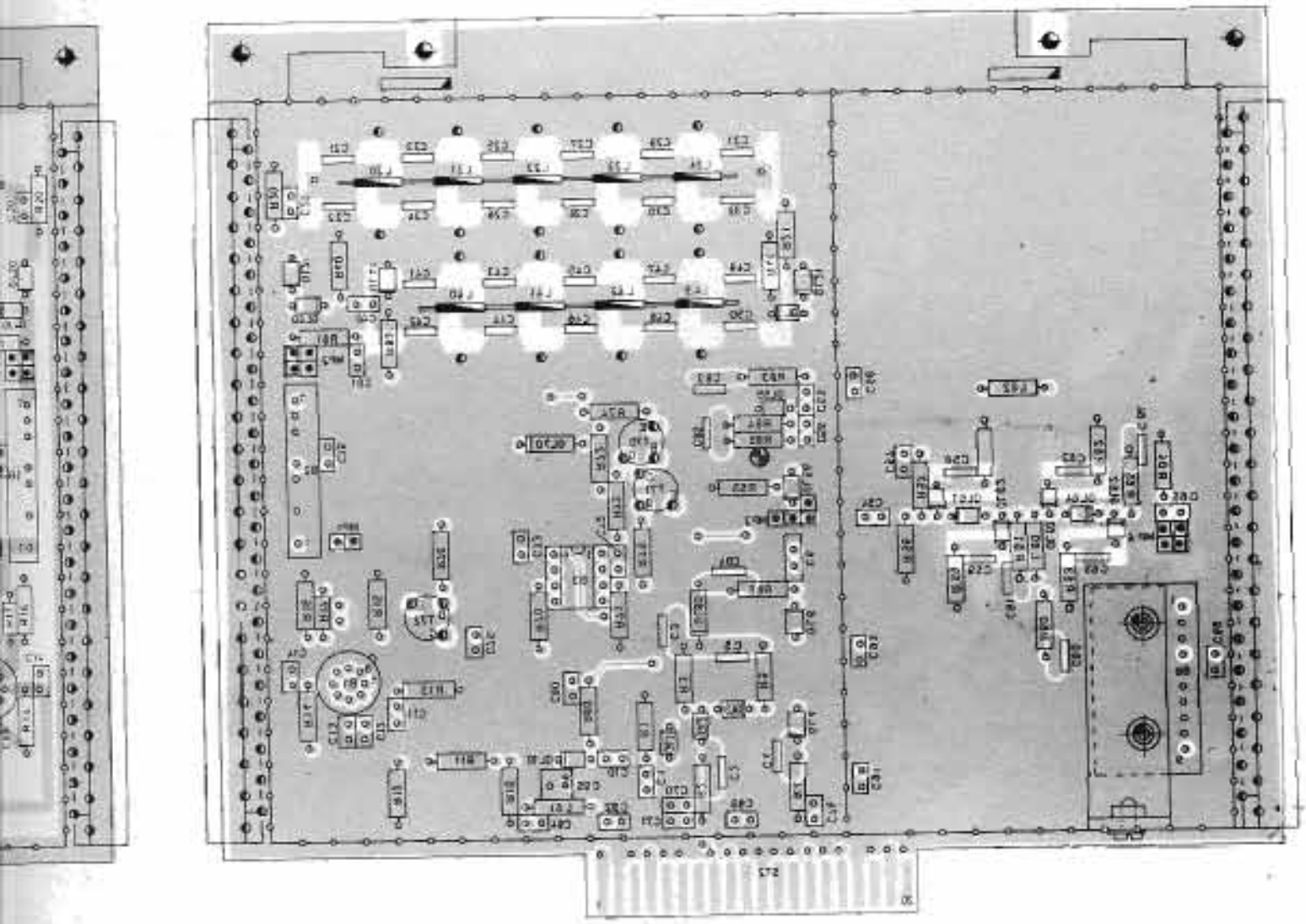
equenz [MHz] equency	„D"	„E"	MP5	MP6	MP7
4 129,9999	L		+19,5	+4,8	
0 189,9999	H	L	-14,5	0	-13,5
0 259,9999	H	H	-14,5	0	+18,5
0 520	L		+19,5	+4,8	

EN - MODULATOR
modulator

ROHDE & SCHWARZ MÜNCHEN			Halbzeug, Werkstoff				Unbemaßte Maße	Zeichn. Nr. 302.5419 S	
							Maßstab	302.4012 V	302.4012
1GME	Datum	Name	Änd. zust.	Änd.-Mitteilg. Nr.	Datum	Name		Ersatz f. Zeichn.	
gezeichnet	8.9.78	Hg	A	24 668	02.79	Mü			
bearbeitet	09.78	Gn	B	26 469	11.80	SY	Teiler Divider		Z
geprüft			C	28 027	02.82	Gn			
norm.gep.									

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

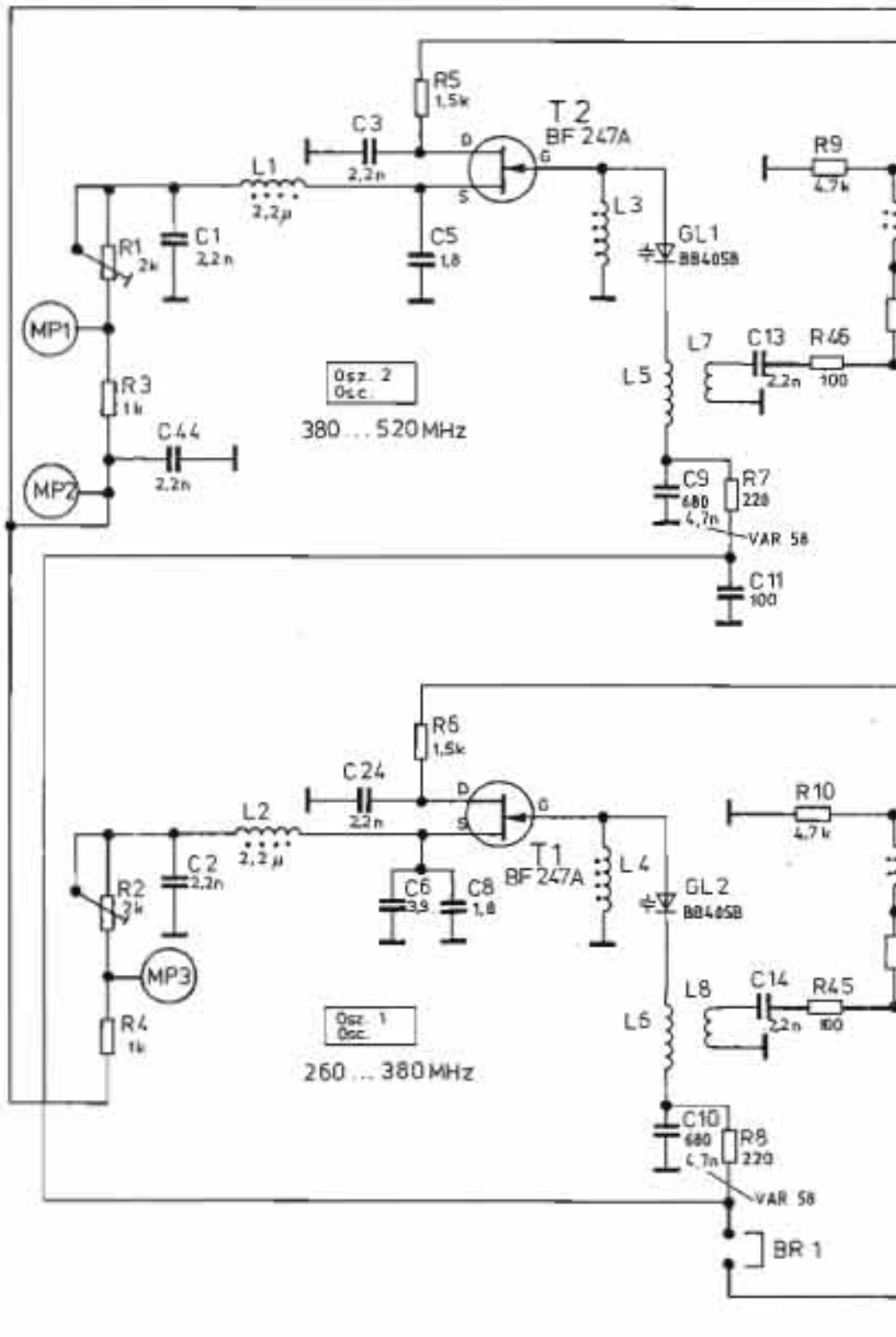
Ansicht und Leitungsführung, Lötseite
View of tracks on solder side



1 2 3 cm

					SMS
				Teiler / Attenuator	
					3
					302 S419

302.5519



ROHDE & SCHWARZ · MÜNCHEN

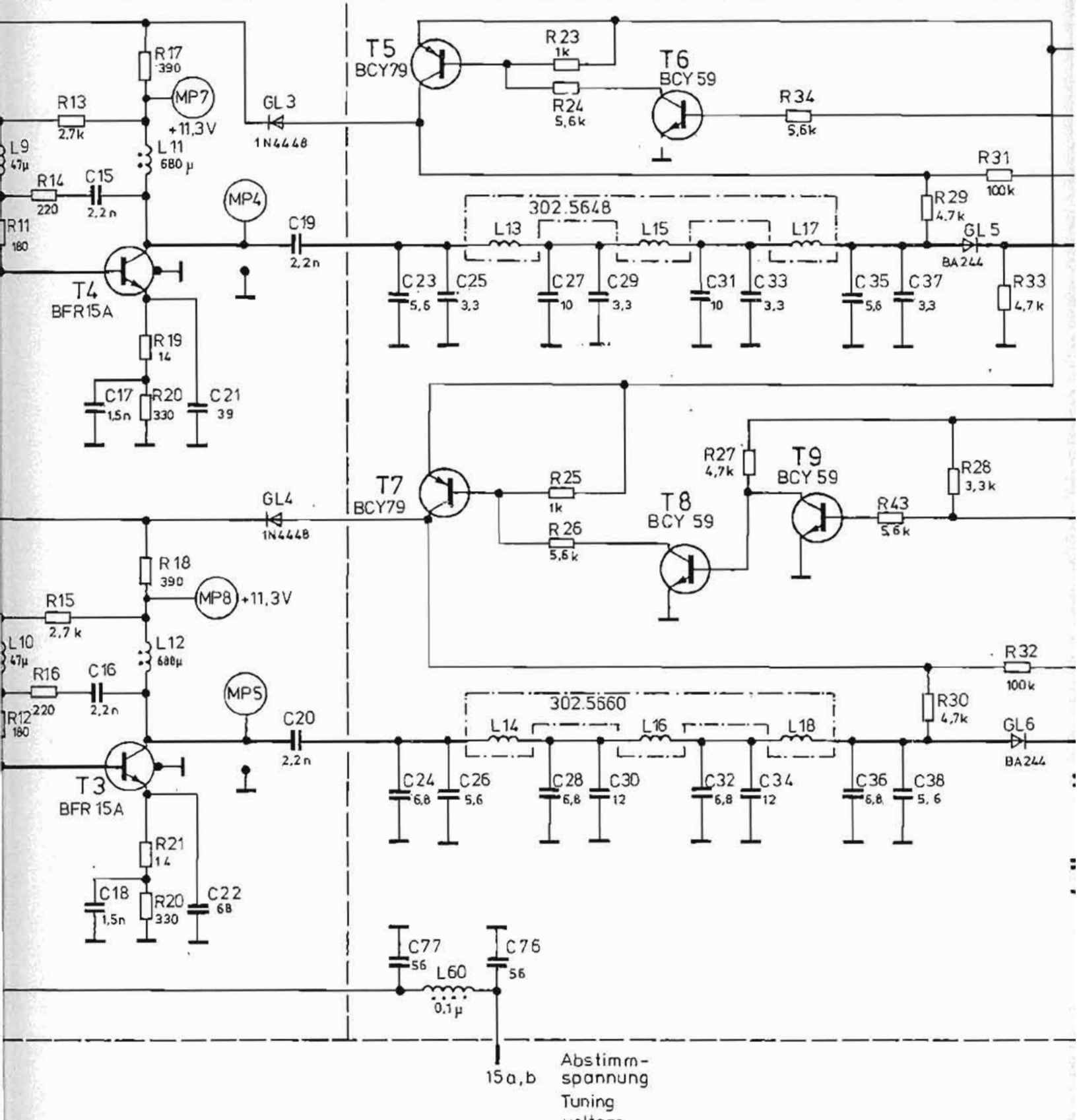
Diese Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Verwertung, Mitteilung an andere ist ungültig und schadenersatzpflichtig.

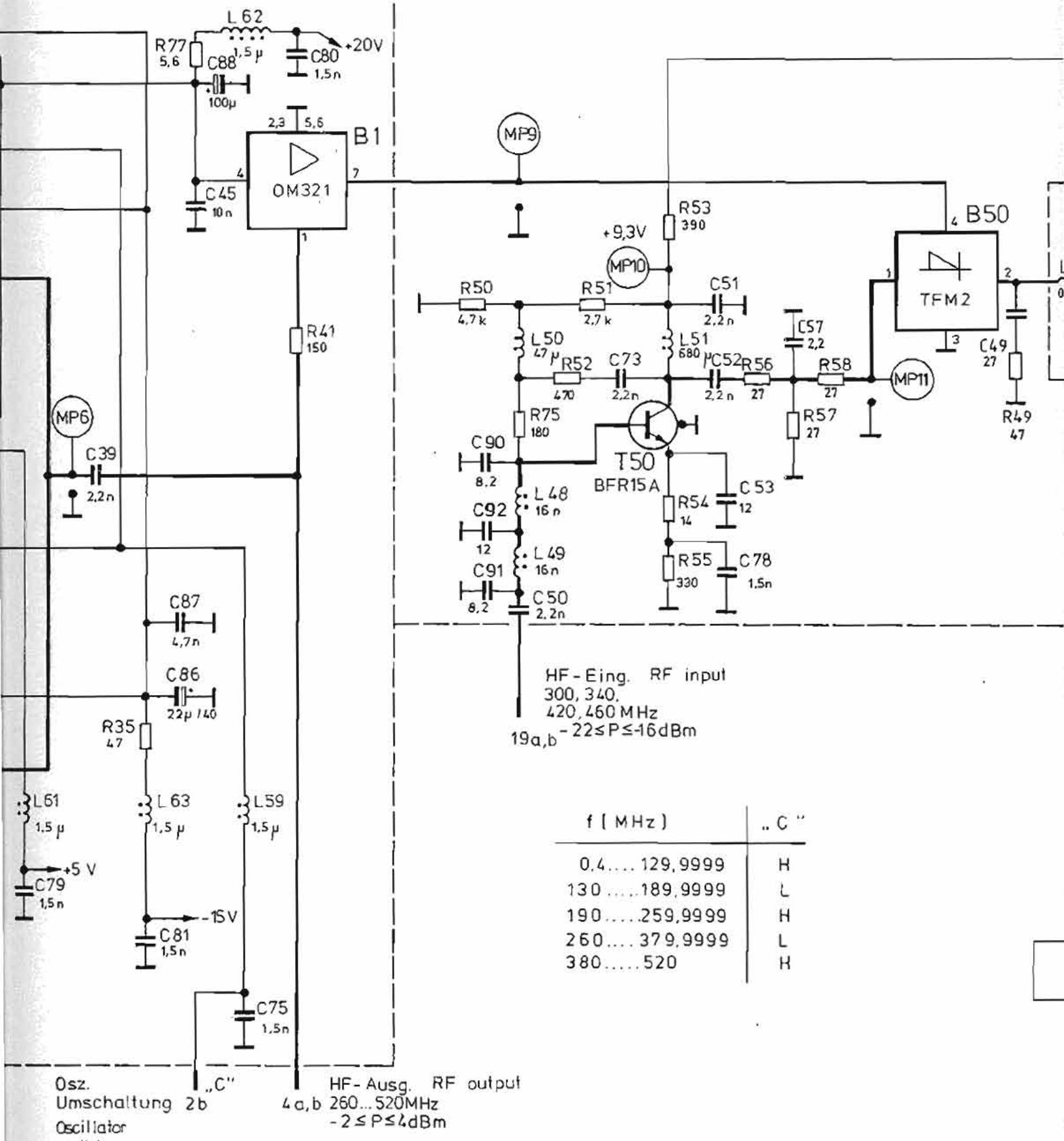
Änd. rest.	Änd.-Mitteilg. Nr.	Datum	Name
F	28613	9.82	Ab
G	29853	5.83	to
H	31273	5.84	CO

Änd. rest.	Änd.-Mitteilg. Nr.	Datum	Name
A	24 668	02.79	MÜ
B	24 791	05.79	Gn
C	25 166	10.79	Gn
D	25932	02.80	Sy
E	26 489	11.80	Sy

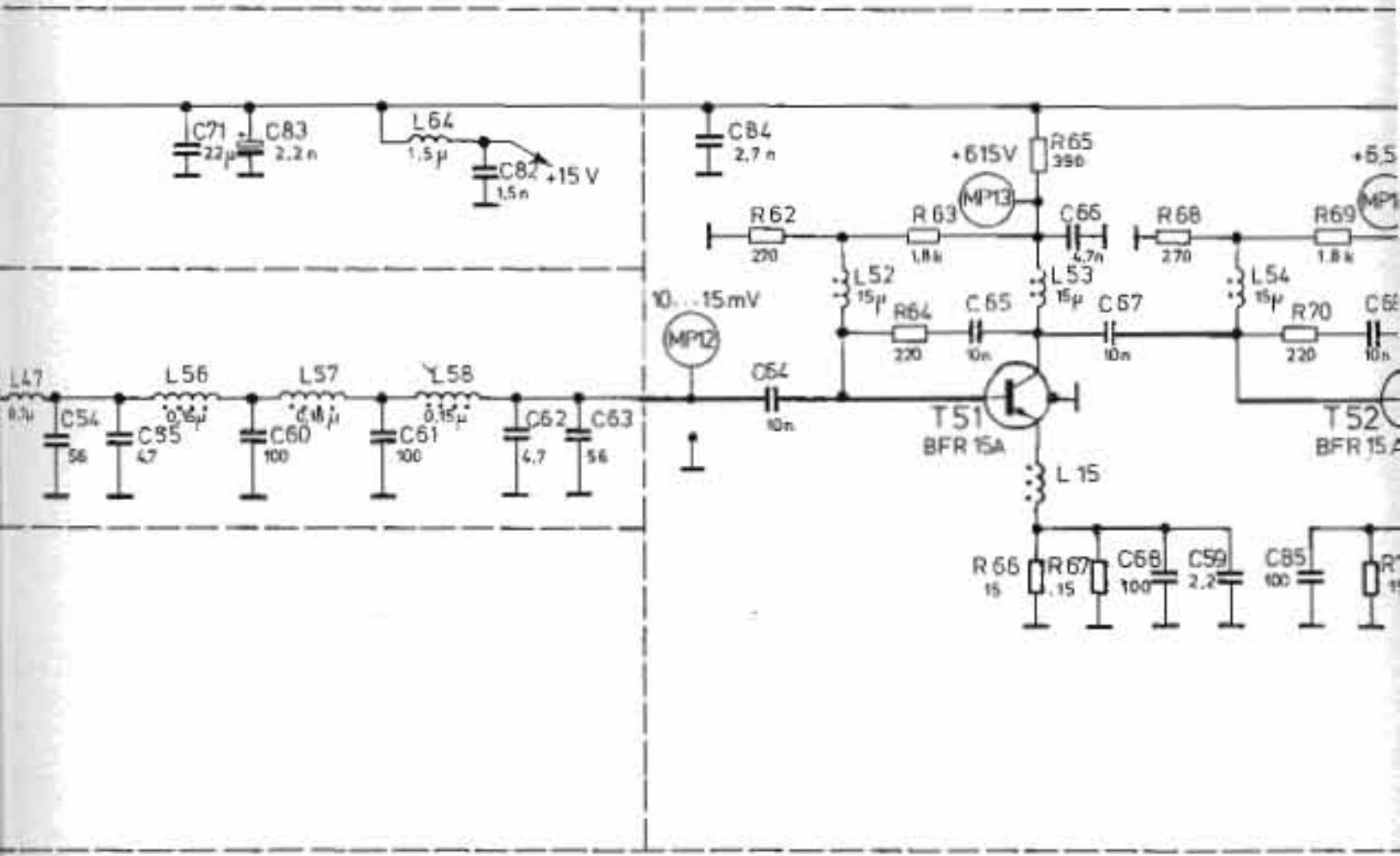
Name	Datum
Sd	06.78

1GME


R17 390
MP7
+11,3V
R13 2,7k
GL3
1N4448
L9 47µ
L11 680µ
R14 220
C15 2,2n
MP4
C19 2,2n
R11 180
T4 BFR15A
R19 14
C17 1,5n
R20 330
C21 39
T5 BCY79
R23 1k
R24 5,6k
T6 BCY59
R34 5,6k
R31 100k
R29 4,7k
302.5648
L13
L15
L17
GL5
BA244
C23 5,6
C25 3,3
C27 10
C29 3,3
C31 10
C33 3,3
C35 5,6
C37 3,3
R33 4,7k
T7 BCY79
R25 1k
R26 5,6k
T8 BCY59
R27 4,7k
T9 BCY59
R28 3,3k
R43 5,6k
GL4
1N4448
R18 390
MP8
+11,3V
R15 2,7k
L10 47µ
L12 680µ
R16 220
C16 2,2n
MP5
C20 2,2n
R12 180
T3 BFR15A
R21 14
C18 1,5n
R20 330
C22 68
R32 100k
R30 4,7k
302.5660
L14
L16
L18
GL6
BA244
C24 6,8
C26 5,6
C28 6,8
C30 12
C32 6,8
C34 12
C36 6,8
C38 5,6
C77 56
C76 56
L60 0,1µ
15a,b
Abstimm-spannung
Tuning voltage

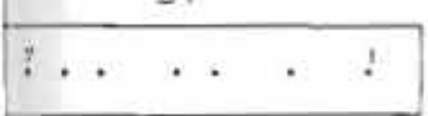


f [MHz]	„C"
0,4.... 129,9999	H
130 189,9999	L
190.....259,9999	H
260.... 379,9999	L
380.....520	H



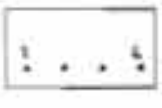
3a,b
5a,b
10a,b
12a,b
18a,b
20a,b

B1



Draufsicht
Top view

850



Draufsicht
Top view

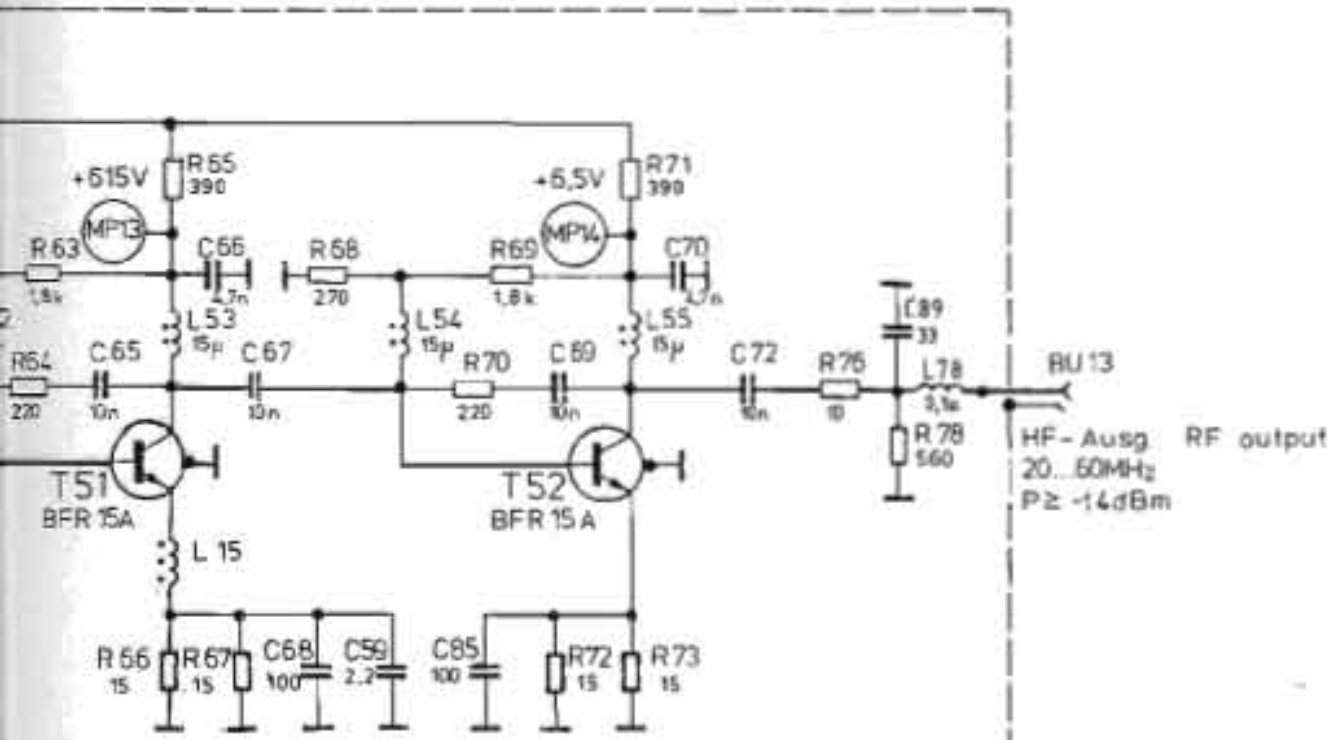
T1
T2

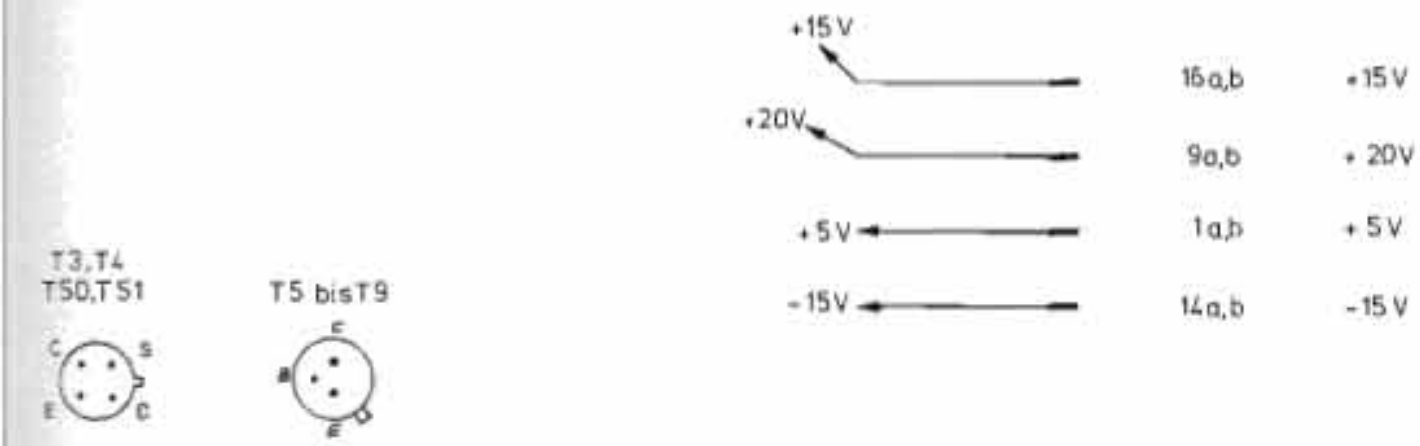
T3,T4
T50,T51

T5 bis T9

Str
Cir

Stromlauf zu





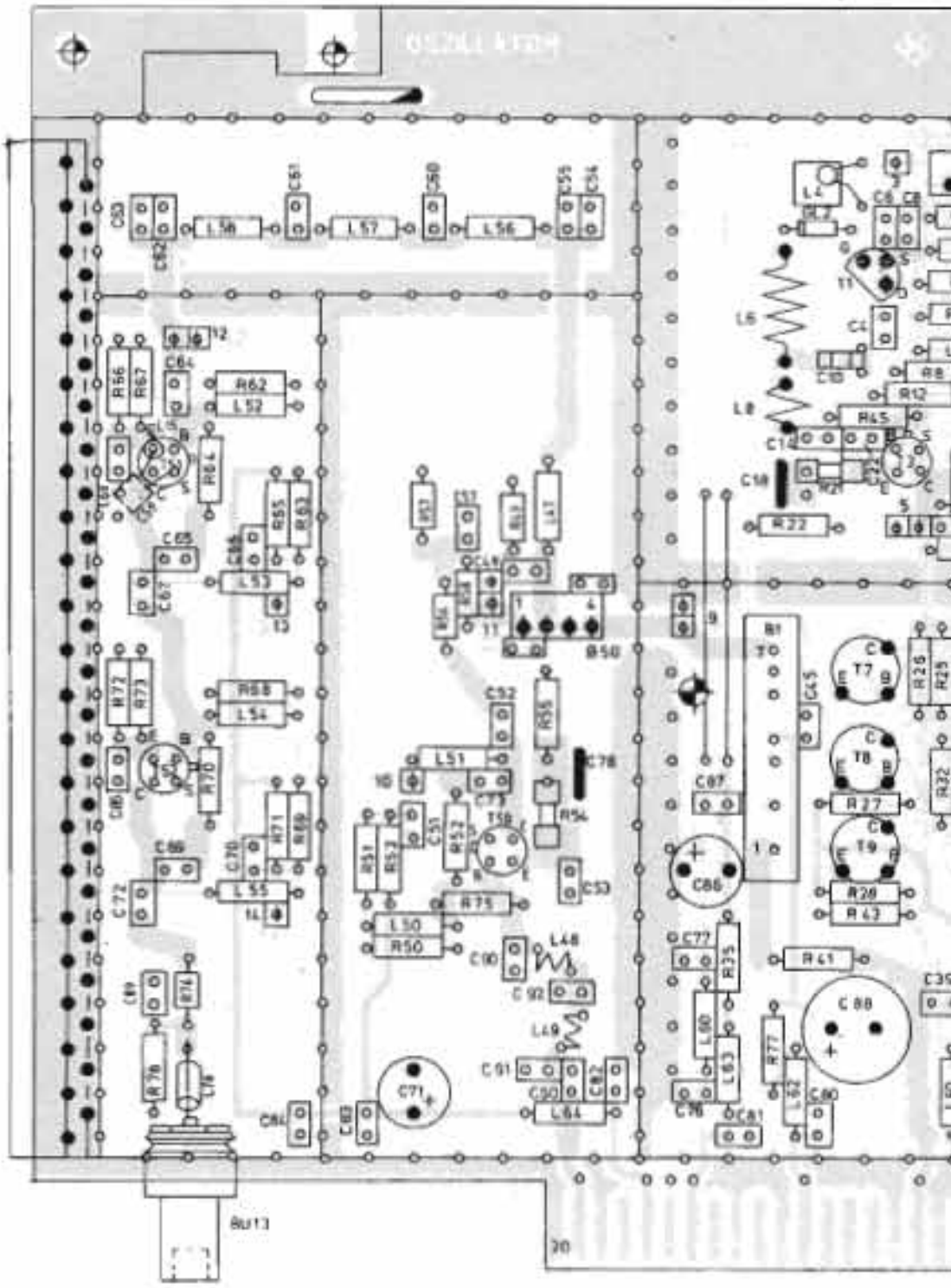
T3,T4
T50,T51

T5 bis T9

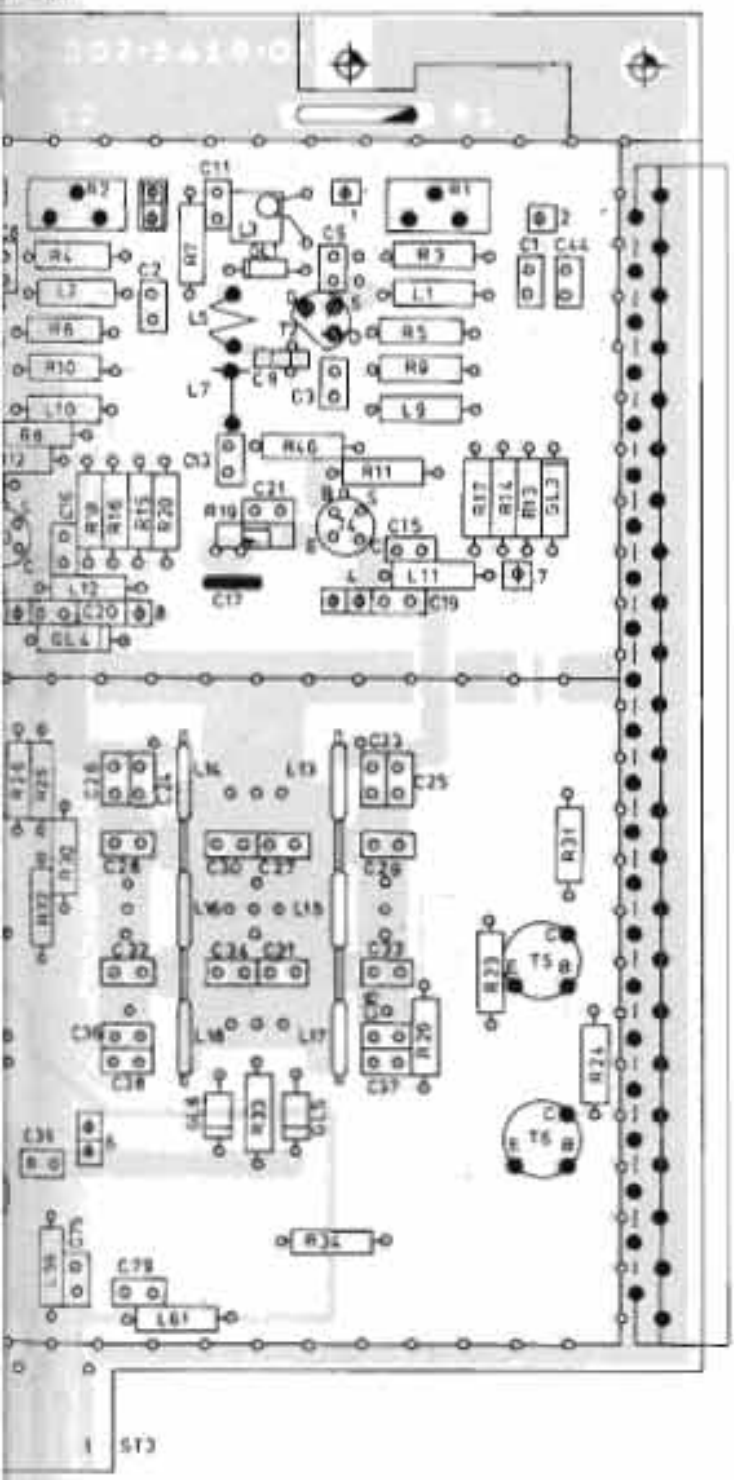
Stromlauf gilt für VAR 02, 58
Circuit diagramm is valid for model 02, 58

Stromlauf zu	Oszillator Oscillator	Z	Zeichn. Nr. 302.5619 S
			302.4012 V / 302 4012

Ansicht und Leitungsführung Bo
View of tracks on component

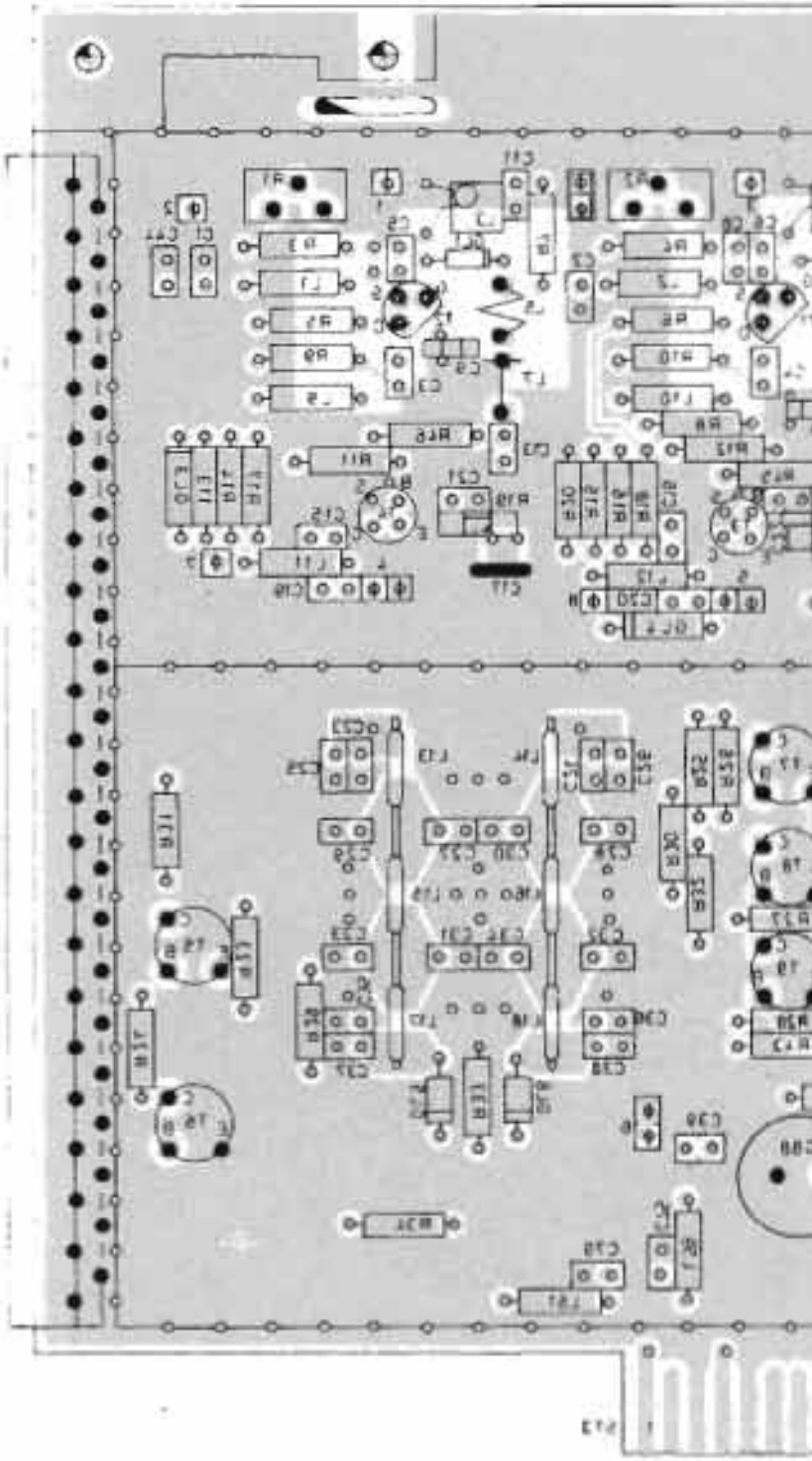


Bauteilseite
Side

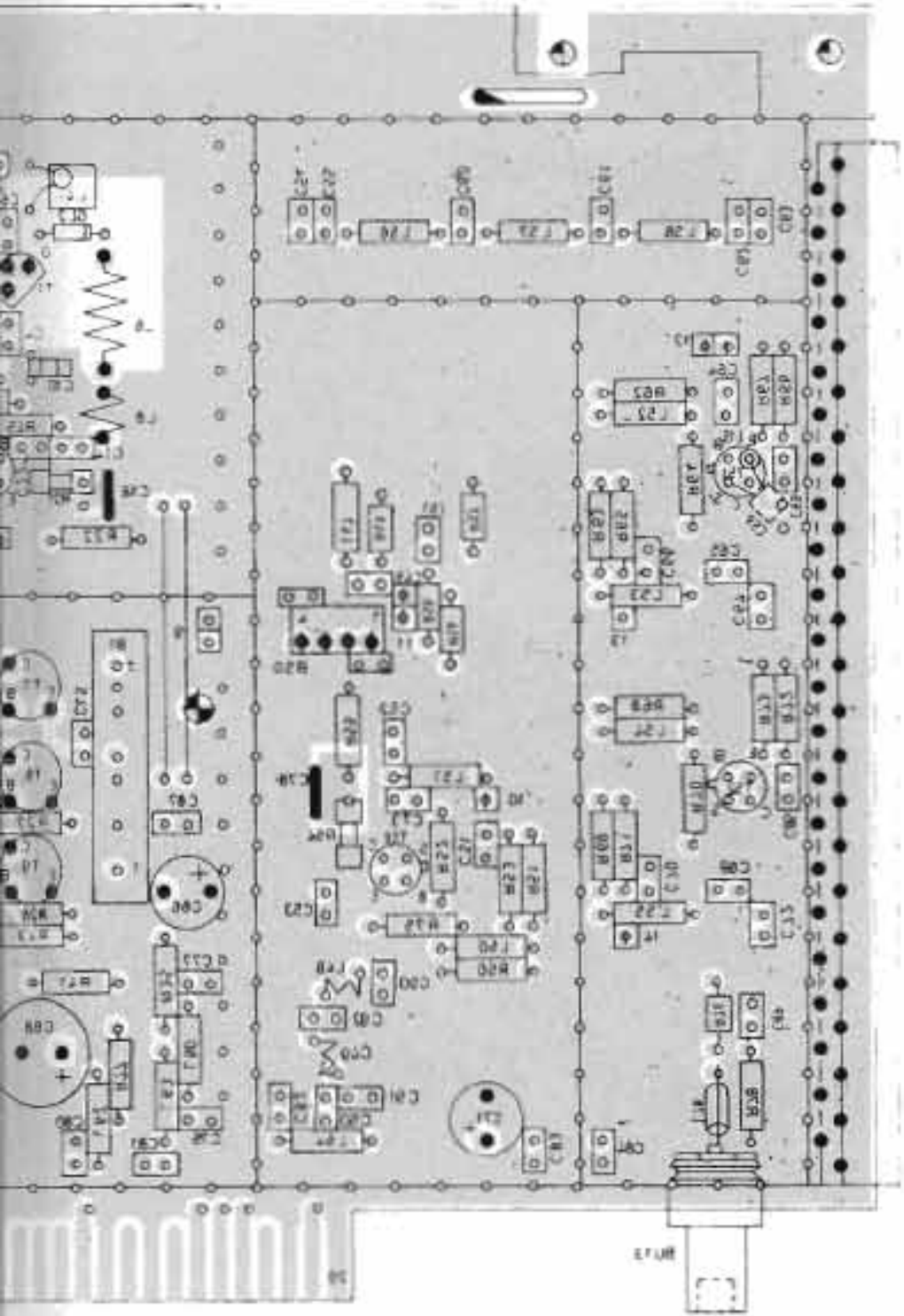


B	24791	06 79	Gn				
C	25106	10 79	Gn				
E	26489	1.81	Sy				
F	28027	11.81	Pf				
J	29853	05 83	ck	EHG	10 7 78	Wa	Oszillator Oscillator 2
				SMS			302 5619 2

Ansicht
View of t



cht und Leitungsführung Lötseite
of tracks on solder side



B	2.79	04.79	GM
C	25166	10.79	Gm
D	25532	03.80	Sy
E	26485	11.81	Sy
F	28027	11.81	Sy
J	13824	6.83	Sy

	10.78	Wm.

Oszillator
Oscillator

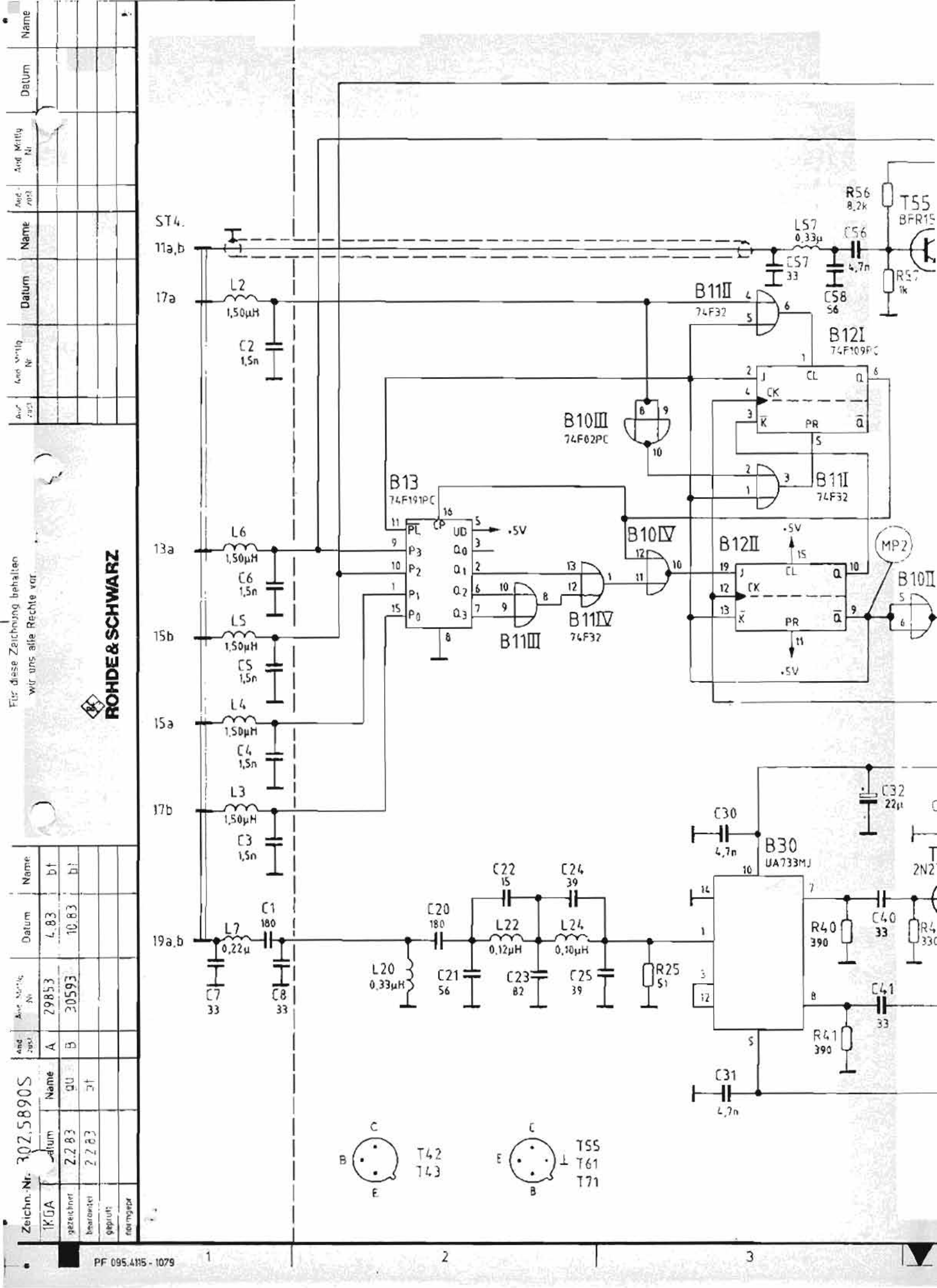
Z

302 5619

5

SMS

302 4012 V | 302 4012



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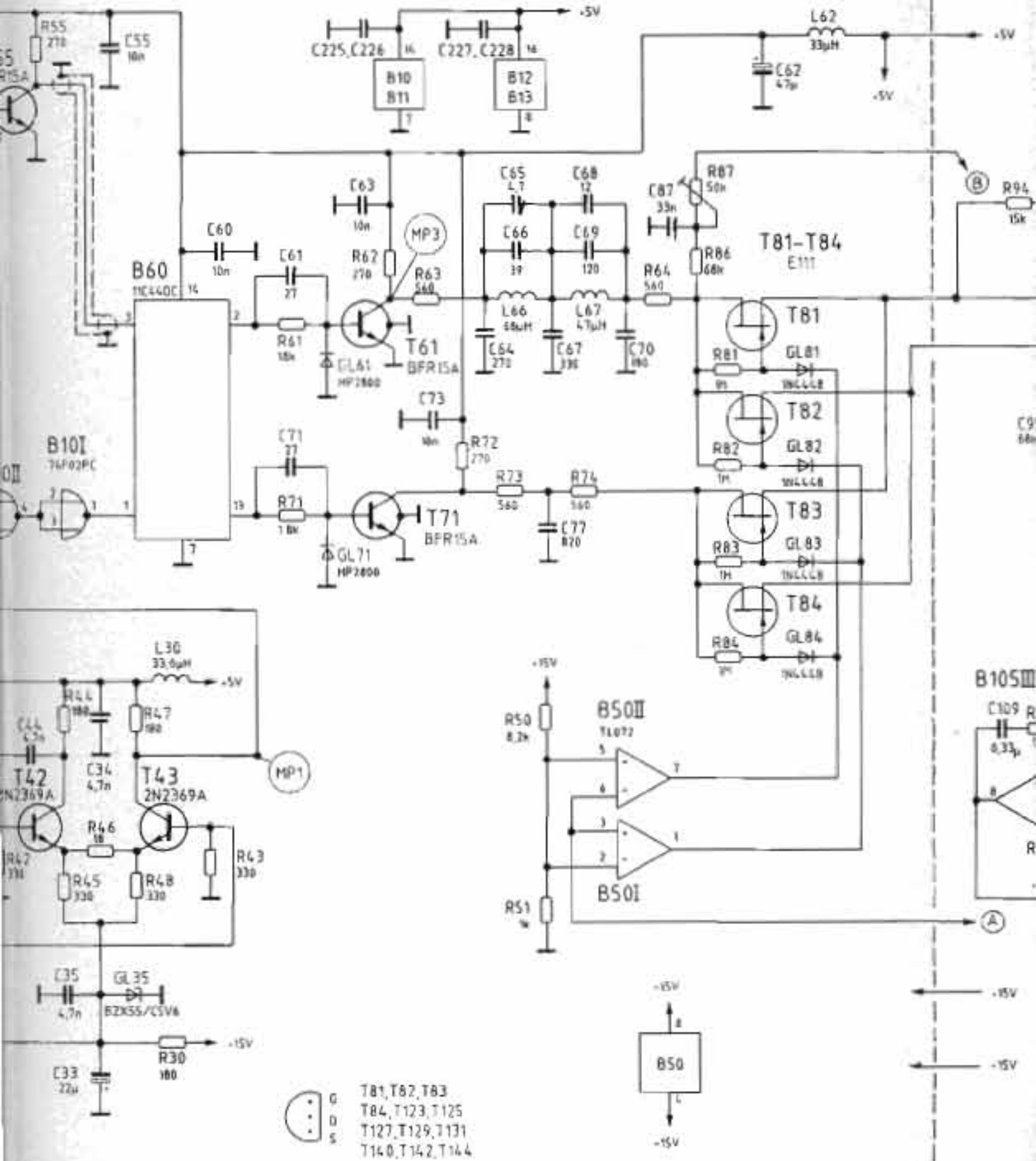
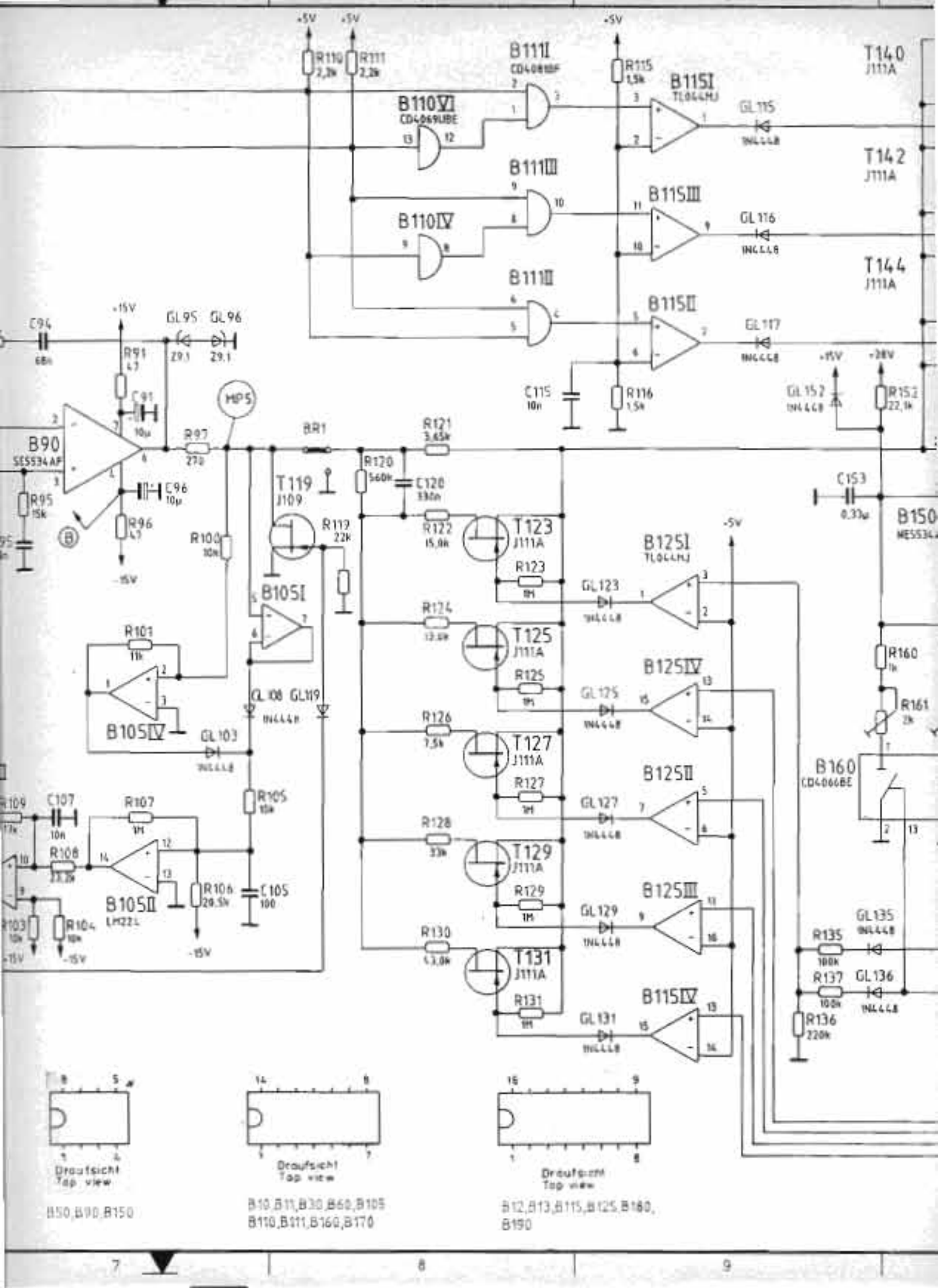
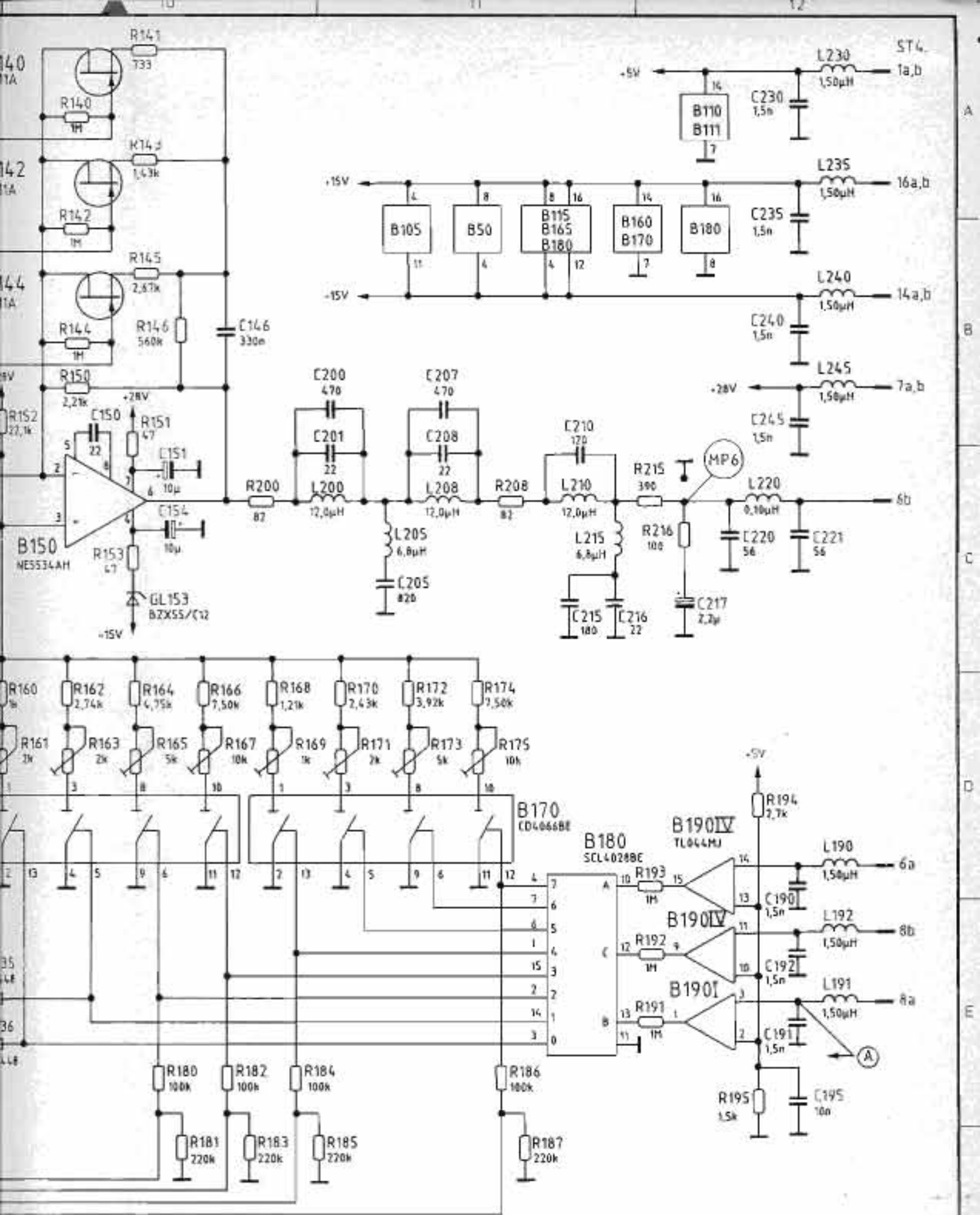
	Name	Datum	Änd. Mitteilg. Nr.	Änd. Index	Name	Datum	Änd. Mitteilg. Nr.	Änd. Index
					bt	4.83	29853	A
					bi	10.83	30593	B
gezeichnet	gu	2.83						
bearbeitet	bt	2.83						
geprüft								
normgeprüft								

Zeichn.-Nr. 302.5890.S
IKGA

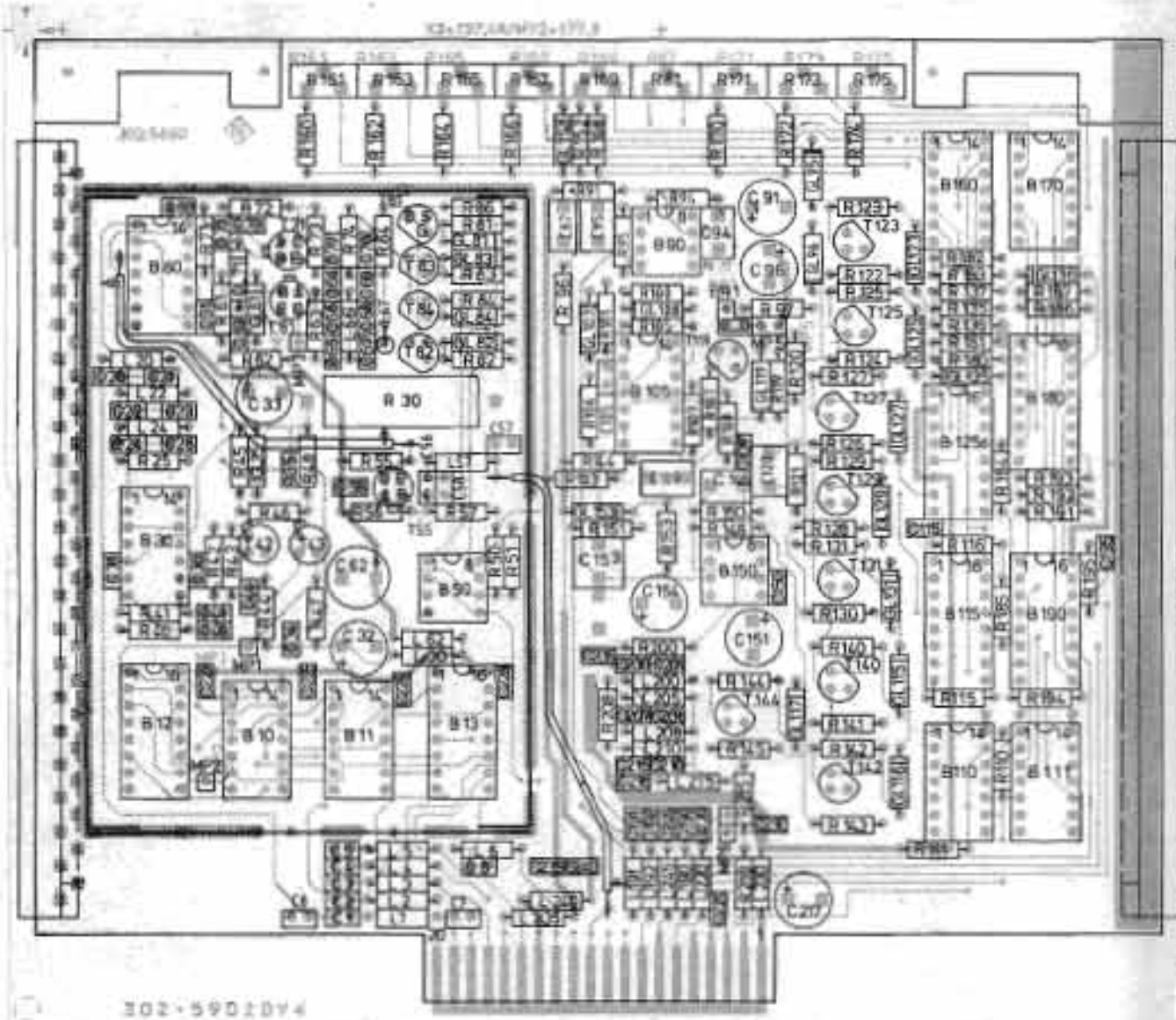

+5V
C225,C226
C227,C228
B10
B11
B12
B13
L62
33µH
C62
47µ
R55
270
C55
10n
C63
10n
C60
10n
C61
27
R62
270
MP3
R63
560
B60
TTC440C
R61
1k8
GL61
HP2800
T61
BFR15A
C65
4,7
C66
39
C68
12
C69
120
C87
33n
R87
50k
R86
68k
R64
560
L66
68µH
L67
47µH
C64
270
C67
330
C70
180
T81-T84
E111
T81
R81
GL81
T82
R82
GL82
T83
R83
GL83
T84
R84
GL84
1N4448
R94
15k
C73
10n
R72
270
C71
27
R71
1,8k
T71
BFR15A
GL71
HP2800
R73
560
R74
560
C77
820
B10I
74F02PC
L30
33,6µH
+5V
R44
180
R47
180
C44
4,7n
C34
4,7n
T42
2N2369A
T43
2N2369A
MP1
R46
18
R45
330
R48
330
R43
330
C35
4,7n
GL35
BZX55/C5V6
R30
180
C33
22µ
-15V
B50III
TL072
R50
8,2k
B50I
R51
1k
B50
G
D
S
T81,T82,T83
T84,T123,T125
T127,T129,T131
T140,T142,T144
B105III
C109
8,33µ
A
B


+5V
+15V
-15V
B110VI CD4069UBE
B111I CD4081BF
B111III
B110IV
B111II
B115I TL064MJ
B115III
B115II
B115IV
T140 J111A
T142 J111A
T144 J111A
GL115
GL116
GL117
GL95 GL96
Z9.1
B90 SE5534AF
MP5
B105I
B105II LM224
B105IV
T119 J109
T123 J111A
T125 J111A
T127 J111A
T129 J111A
T131 J111A
B125I TL064MJ
B125II
B125III
B125IV
GL123
GL125
GL127
GL129
GL131
GL135
GL136
GL152
B150 ME5534
B160 CD4066BE
Draufsicht
Top view
B50,B90,B150
B10,B11,B30,B60,B105
B110,B111,B160,B170
B12,B13,B115,B125,B180,
B190



Stromlauf zu Phasenregelung / Phase control		Z	Zeichn.-Nr. 302.5890 S		Blatt-Nr
SMS	reg. i. V. 302.4012 V	erste Z. 302.4012			v BL

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



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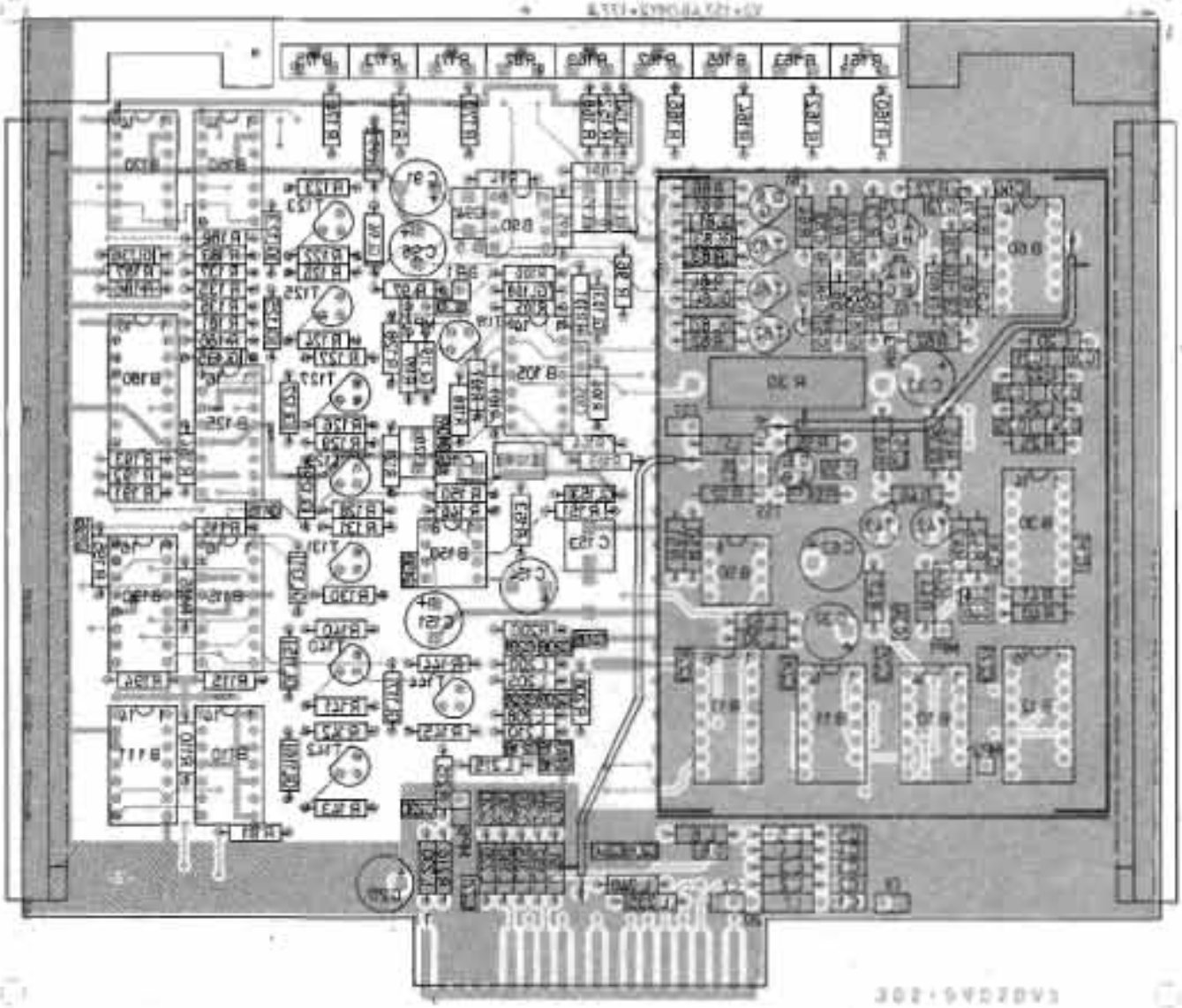
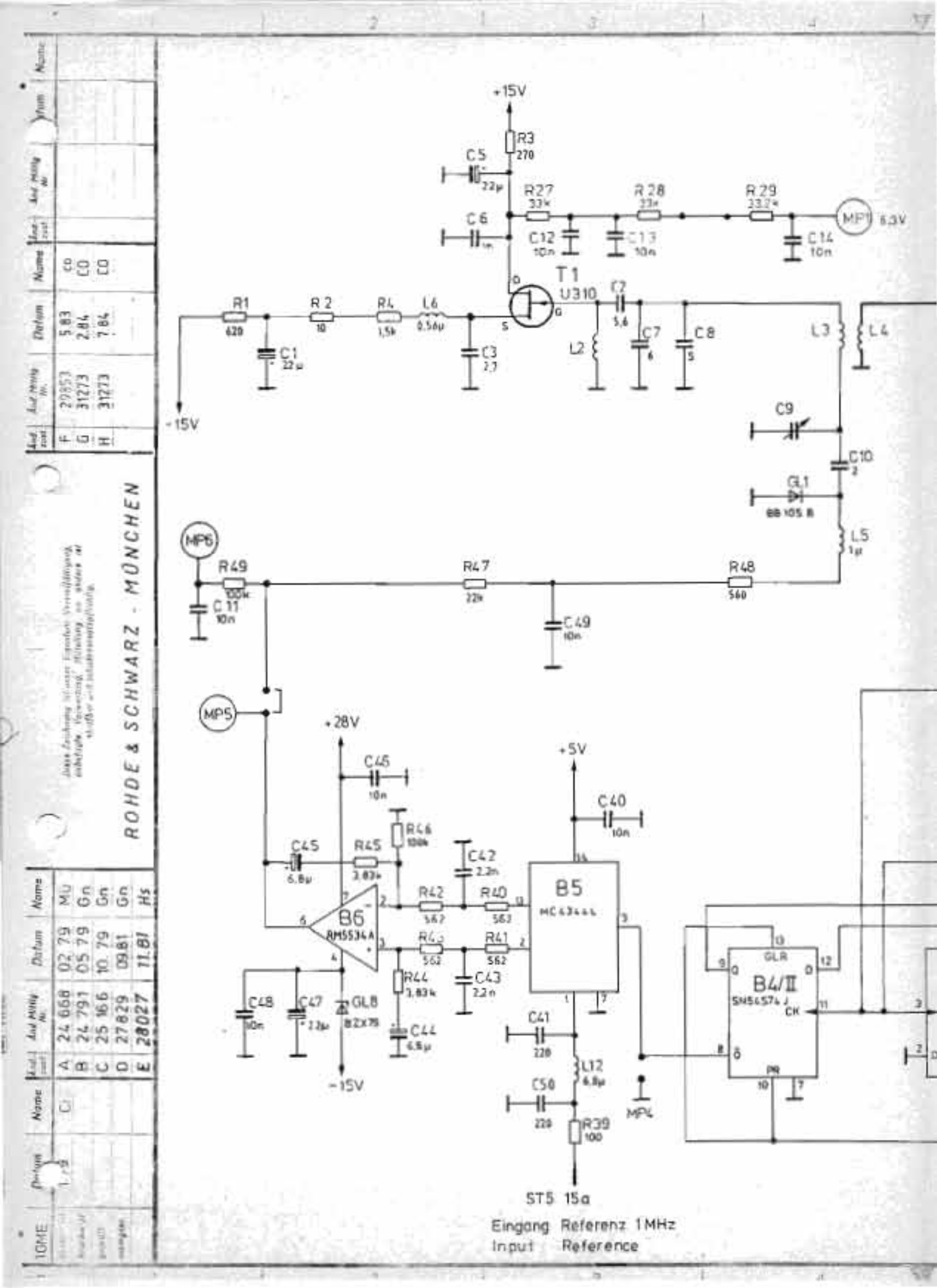
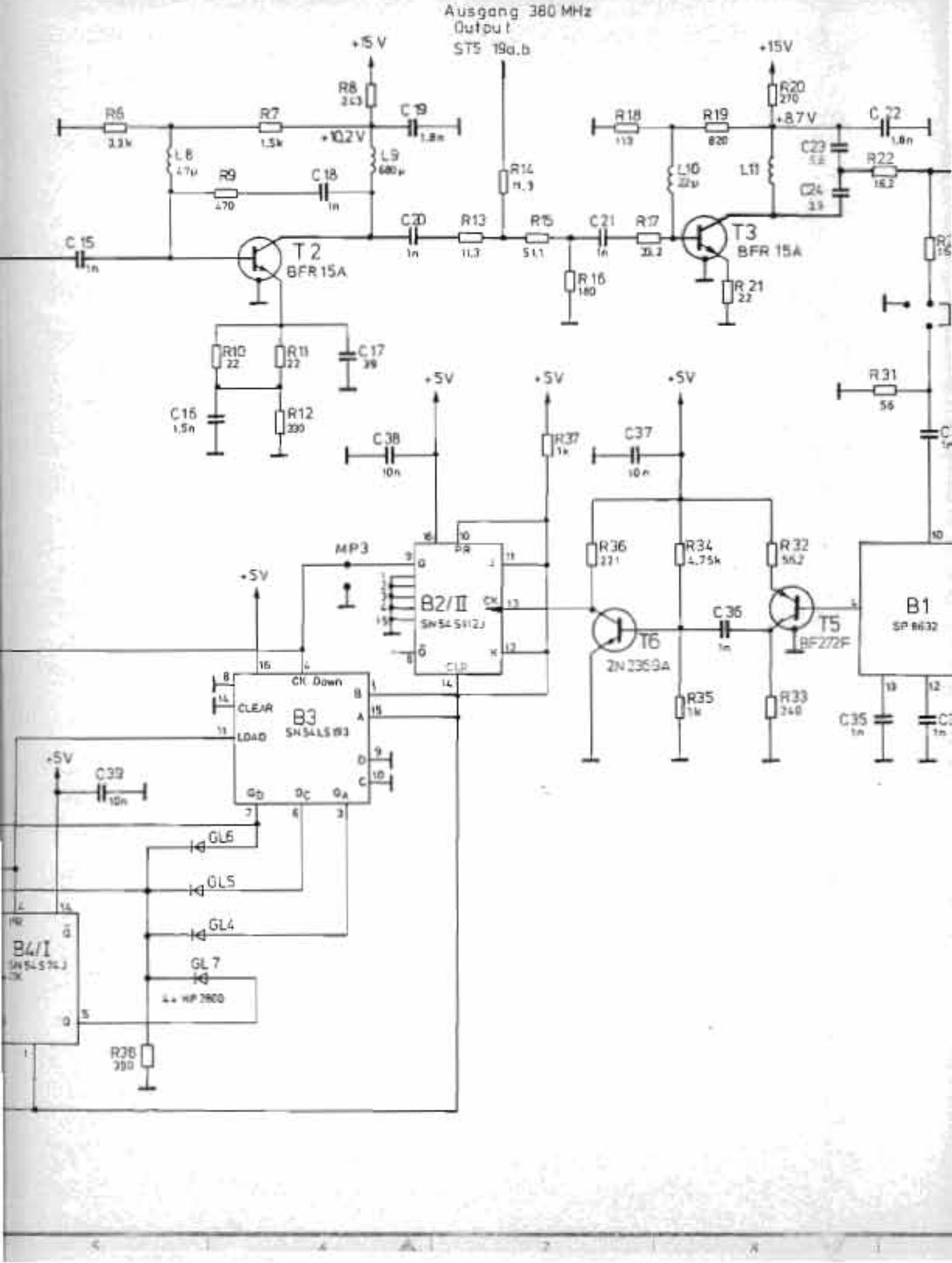
ISO-Pro...ion
Methode E

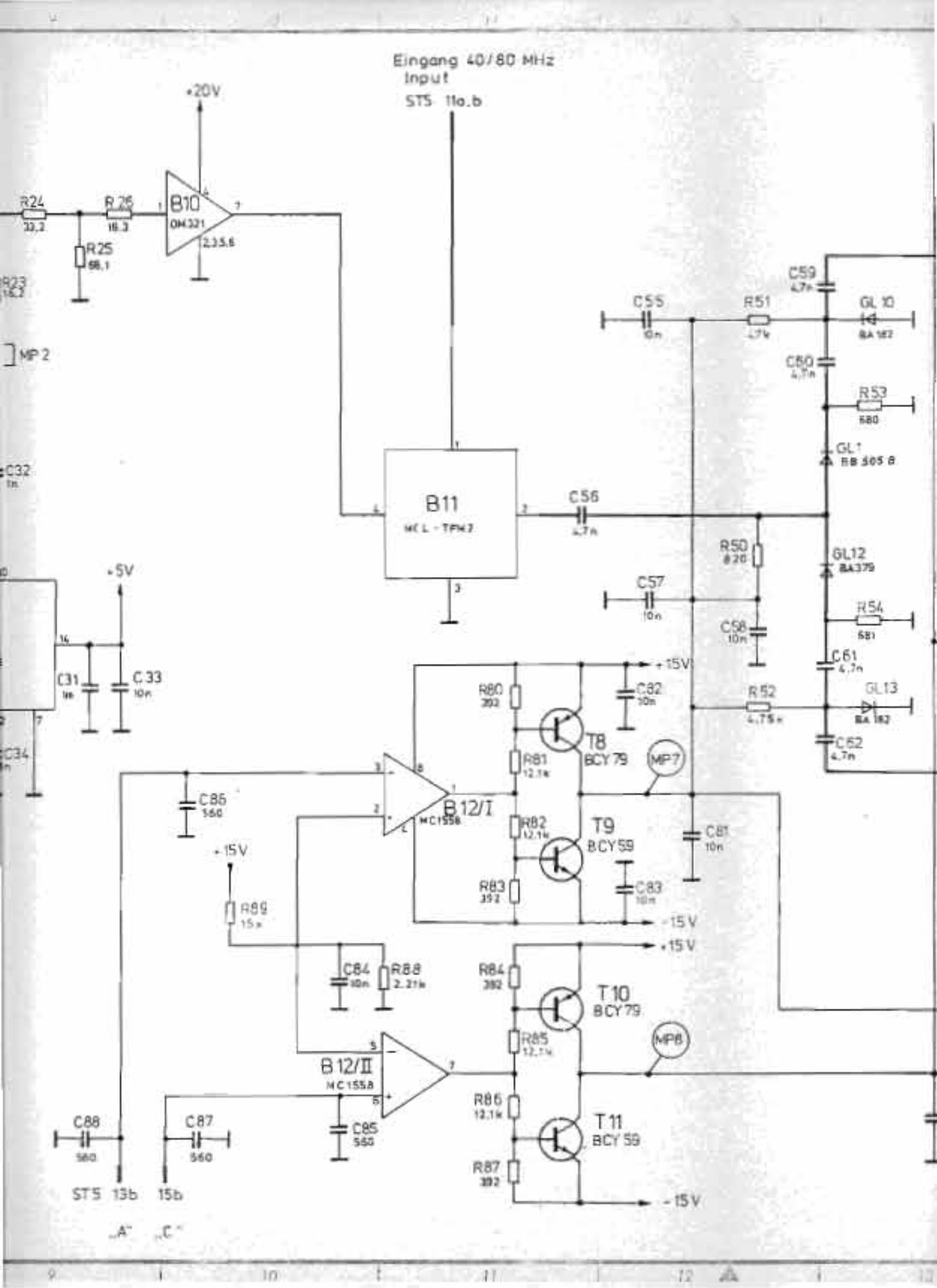
Ansicht und Leitungsführung Lötseite
View of tracks on solder side

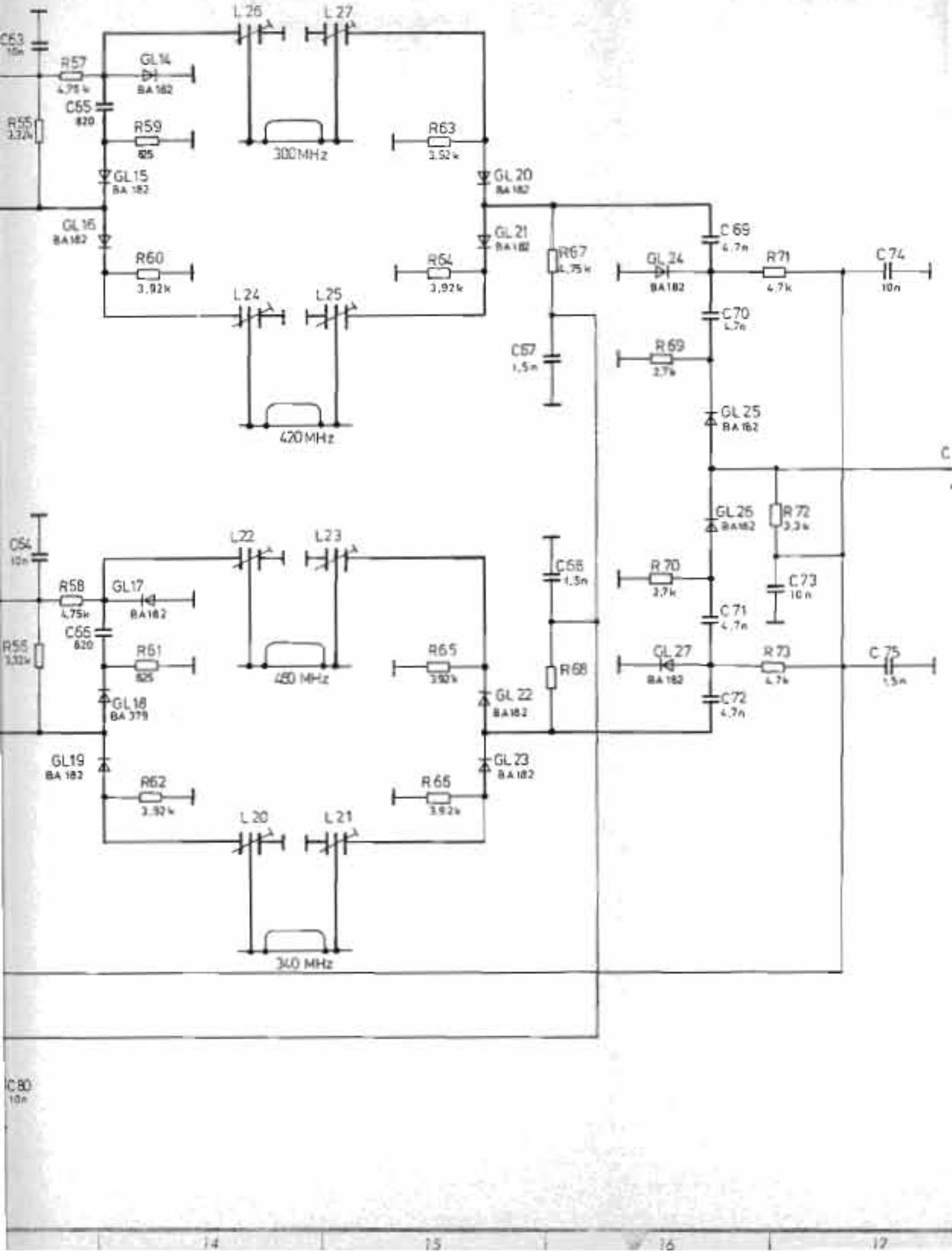


D	30593	9.83	CO	Maße ohne Toleranzangabe		Maßstab 1 : 1	
E	31273	584	BT			Halbzeug, Werkstoff	
				1KGA	Tag	Name	Benennung
				Bearb.	9.83	CO	Phasenregelung Phase control
				Gepr.			Z
				Norm.			
Änd. Zust.	Änderungs-Mitteilung	Tag	Name	ROHDE&SCHWARZ		Zeichn.-Nr. 302.5890	Blatt-Nr. 2
				zu Gerät SMS		reg. i. V. 302.4012V	erste Z. 302.4012


+15V
R3
270
C5
22µ
R27
33k
R28
33k
R29
33.2k
MP1
6.3V
C6
C12
10n
C13
10n
C14
10n
T1
U310
R1
620
R2
10
R4
1.5k
L6
0.56µ
C1
22µ
C3
2.7
C2
5.6
C7
6
C8
5
L2
L3
L4
-15V
C9
C10
2
GL1
BB 105 B
L5
1µ
MP6
R49
100k
R47
22k
R48
560
C11
10n
C49
10n
MP5
+28V
C46
10n
C45
6.8µ
R45
3.83k
R46
100k
C42
2.2n
R42
562
R40
562
B6
RM5534A
R43
562
R41
562
R44
3.83k
C43
2.2n
C48
10n
C47
2.2µ
GL8
BZX 79
C44
6.8µ
-15V
+5V
C40
10n
B5
MC 43444
C41
220
L12
6.8µ
C50
220
R39
100
MP4
B4/II
SN54S74J
GLR
CK
ST5 15a
Eingang Referenz 1MHz
Input Reference
ROHDE & SCHWARZ - MÜNCHEN


Ausgang 380 MHz
Output
STS 19a,b
+15 V
+15V
+10,2V
+8,7V
R6
R7
R8
C19
R18
R19
R20
C22
L8
L9
L10
L11
R9
C18
R14
C23
C24
R22
C15
T2
BFR 15A
C20
R13
R15
C21
R17
T3
BFR 15A
R16
R21
R10
R11
C17
C16
R12
+5V
C38
R37
C37
R31
MP3
B2/II
SN54S112J
R36
R34
R32
B1
SP 8632
T6
2N2369A
C36
T5
BF272F
R35
R33
C35
+5V
B3
SN54LS193
CK Down
CLEAR
LOAD
C39
GL6
GL5
GL4
GL 7
B4/I
SN54S74J
R38


Eingang 40/80 MHz
Input
ST5 11a.b
+20V
R24
33,2
R26
18,2
B10
OM321
R25
68,1
MP 2
C32
B11
MCL - TPM2
C56
4,7n
C59
4,7n
C55
10n
R51
4,7k
GL 10
BA 182
C60
4,7n
R53
680
GL1
BB 505 B
R50
820
GL12
BA379
C57
10n
C58
10n
R54
681
C61
4,7n
GL13
BA 182
R52
4,75k
C62
4,7n
+5V
C31
10n
C 33
10n
C34
+15V
C82
10n
R80
392
T8
BCY 79
MP7
R81
12,1k
B12/I
MC1556
C86
560
R82
12,1k
T9
BCY59
C81
10n
+15V
R83
392
C83
10n
-15V
R89
15k
+15V
C84
10n
R88
2,21k
R84
392
T10
BCY 79
MP8
R85
12,1k
B12/II
MC1558
C88
560
C87
560
C85
560
R86
12,1k
T11
BCY 59
R87
392
-15V
ST5 13b
15b
„A"
„C"


L 26
L 27
C63
10n
R57
4,75 k
GL14
BA 182
C65
820
R55
3,32k
R59
825
300MHz
R63
3,92k
GL 20
BA 182
GL15
BA 182
GL 16
BA 182
GL 21
BA 182
R67
4,75k
C69
4,7n
GL 24
BA 182
R71
4,7k
C74
10n
R60
3,92k
R64
3,92k
C70
4,7n
L 24
L 25
C67
1,5n
R69
2,7k
420MHz
GL 25
BA 182
GL 26
BA 182
R72
3,3k
C54
10n
L22
L23
C66
1,5n
R58
4,75k
GL17
BA 182
R70
2,7k
C73
10n
C66
820
C71
4,7n
R56
3,32k
R61
825
450 MHz
R65
3,92k
GL 27
BA 182
R73
4,7k
C75
1,5n
GL 22
BA 182
R68
C72
4,7n
GL18
BA 379
GL19
BA 182
GL 23
BA 182
R62
3,92k
R66
3,92k
L 20
L 21
340 MHz
C80
10n

Frequenz SMS frequency SMS	Umsetz - frequenz Converter frequency	MP 7	MP 8
330 MHz	300 MHz	+15 V	- 15V
360 MHz	340 MHz	- 15 V	- 15V
390 MHz	420 MHz	+15 V	+15V
420 MHz	460 MHz	- 15 V	+15V

+28V

+20V

+15V

-15V

C76
4,7n

BU 14
Ausgang
Umsetzfrequenz
Output
converter frequency

+5V

L 15
1,2µ

B2, B3

B1, B4, B

B 11

Draufsicht
top view

T1

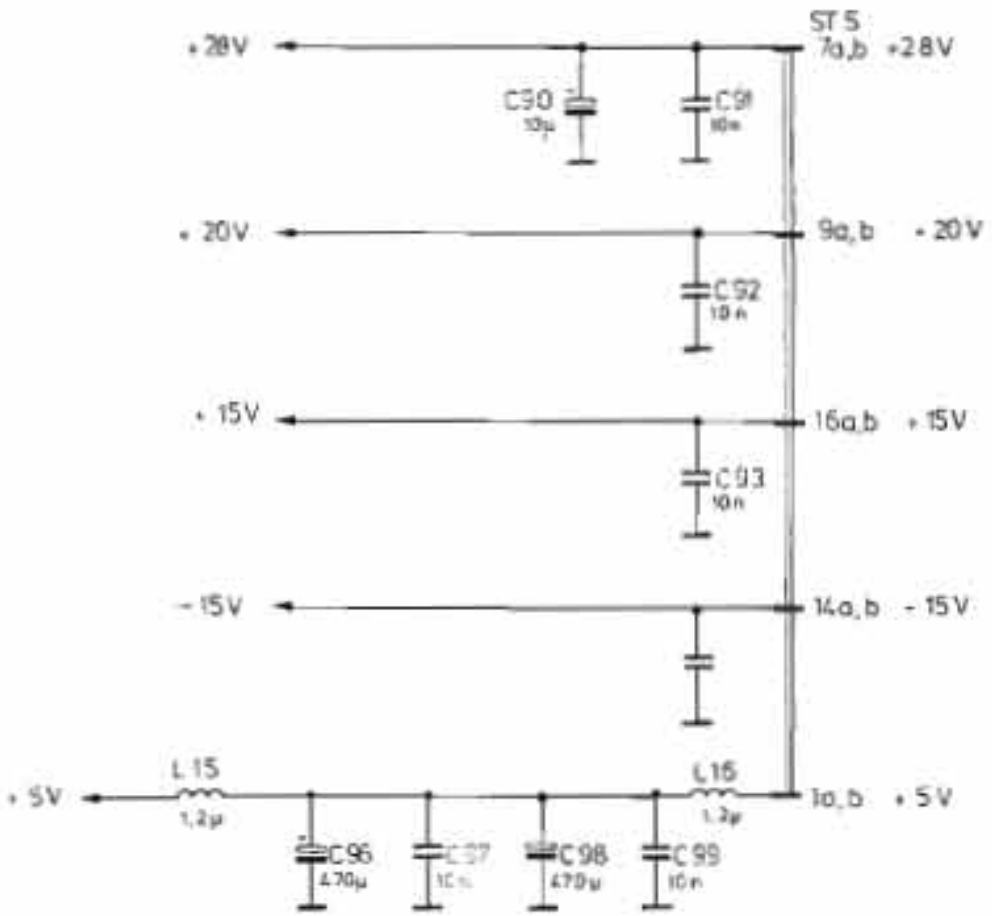
T2, T3

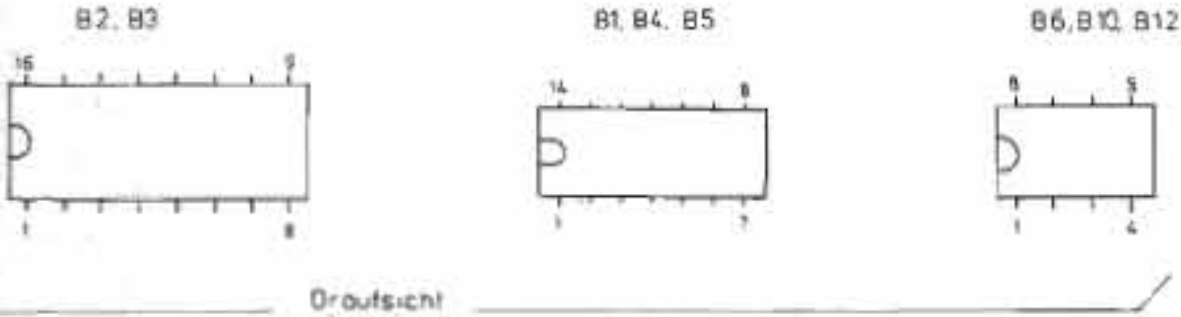
Strom
Circui

Stromlauf zu

Umsetzer
Frequency conv

MP 7	MP 8
+15 V	- 15V
- 15 V	- 15V
+15 V	+15V
-15 V	+15V



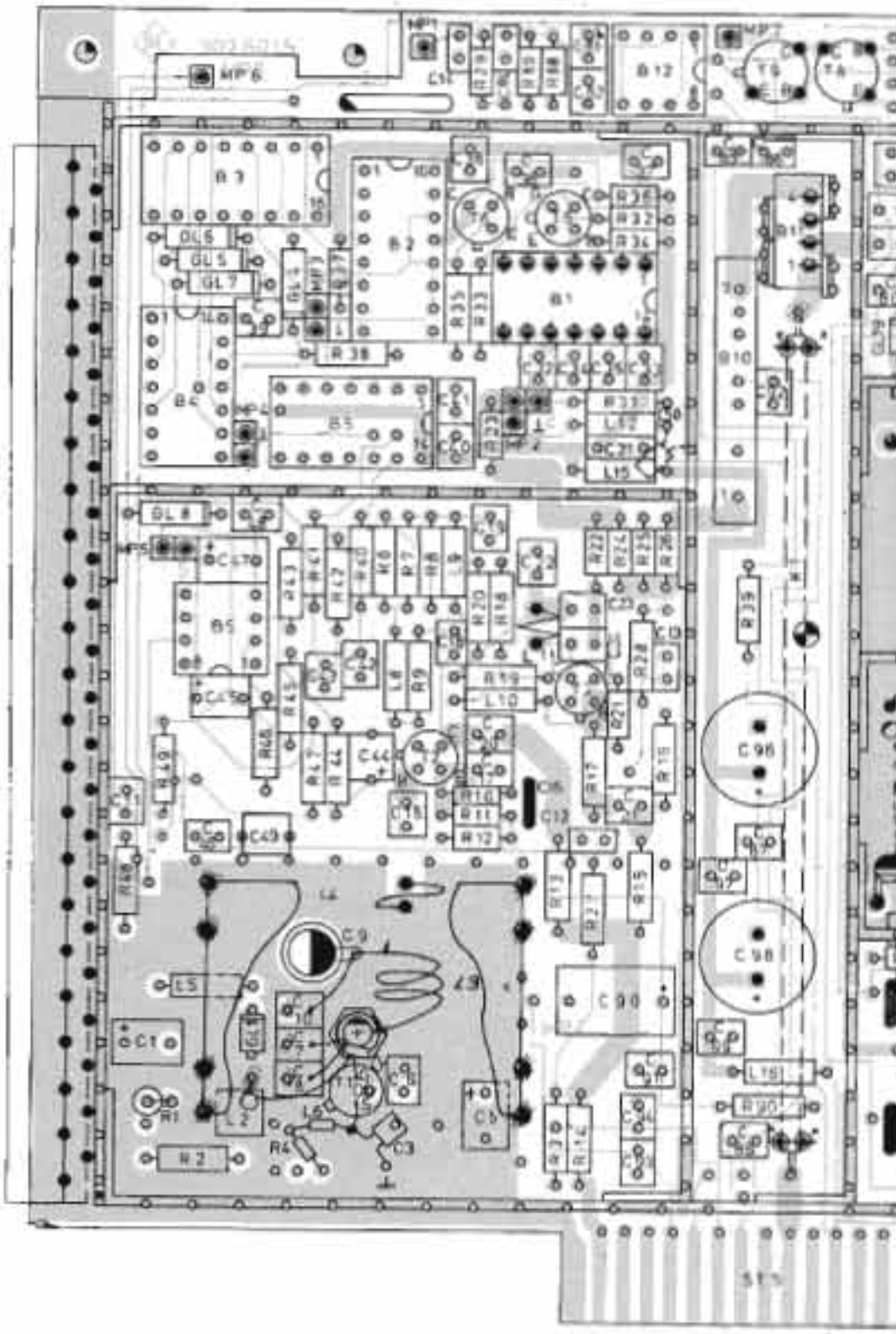


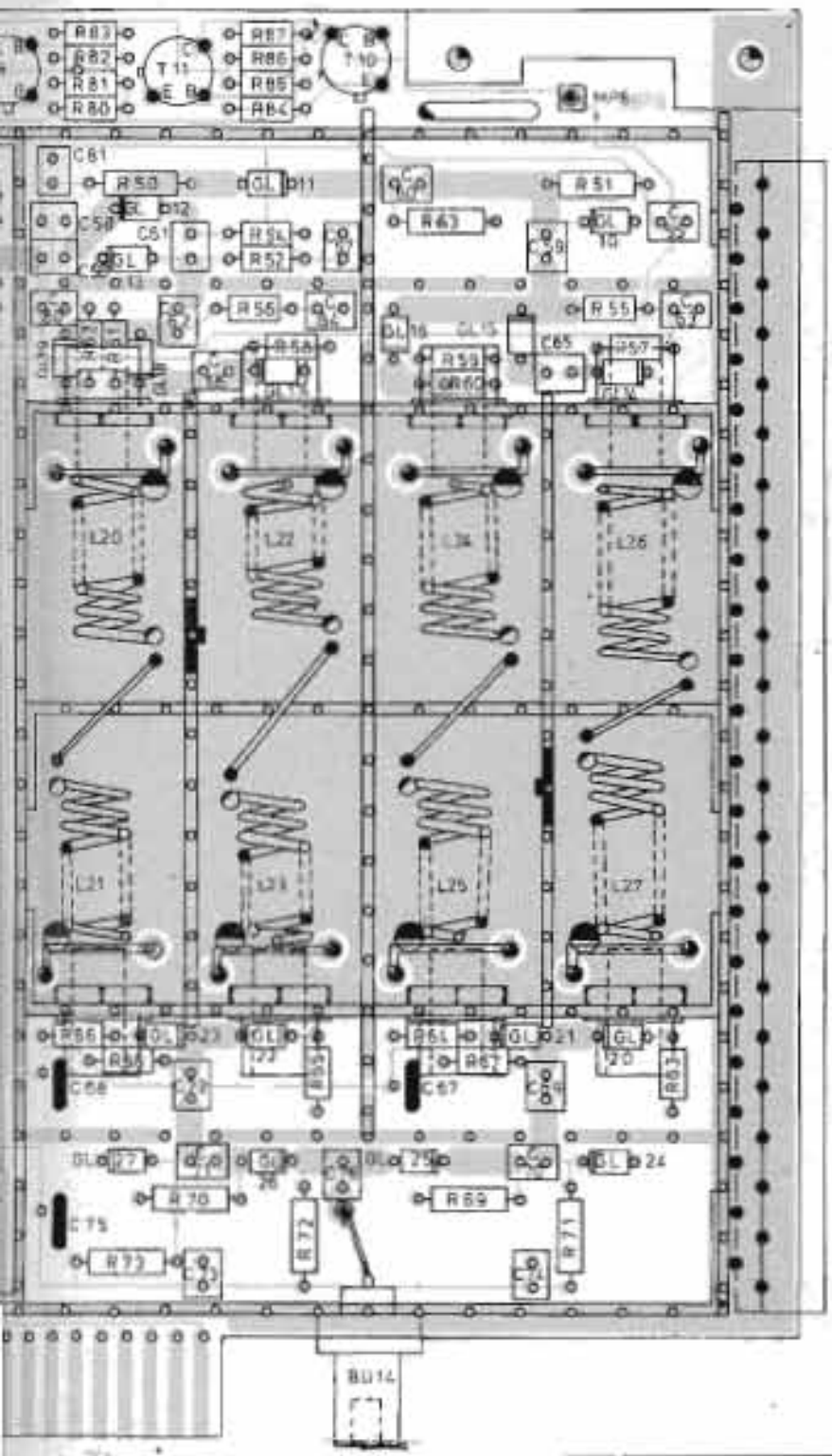
Draufsicht
top view

Stromlauf gilt für VAR 02
Circuit diagramm is valid for model 02

Stromlauf zu	Umsetzer Frequency converter	Z	Zeichn. Nr. 302.6015 S	
			302.4012 V	302.4012

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side





0 1 2 3

F	27829	05.81	Gn
D	28 027	03.83	GN
L	31053	4.83	JB
H	31273	7.84	CO
N	31273	7.84	CO

Benennung: Umsetzer /Converter

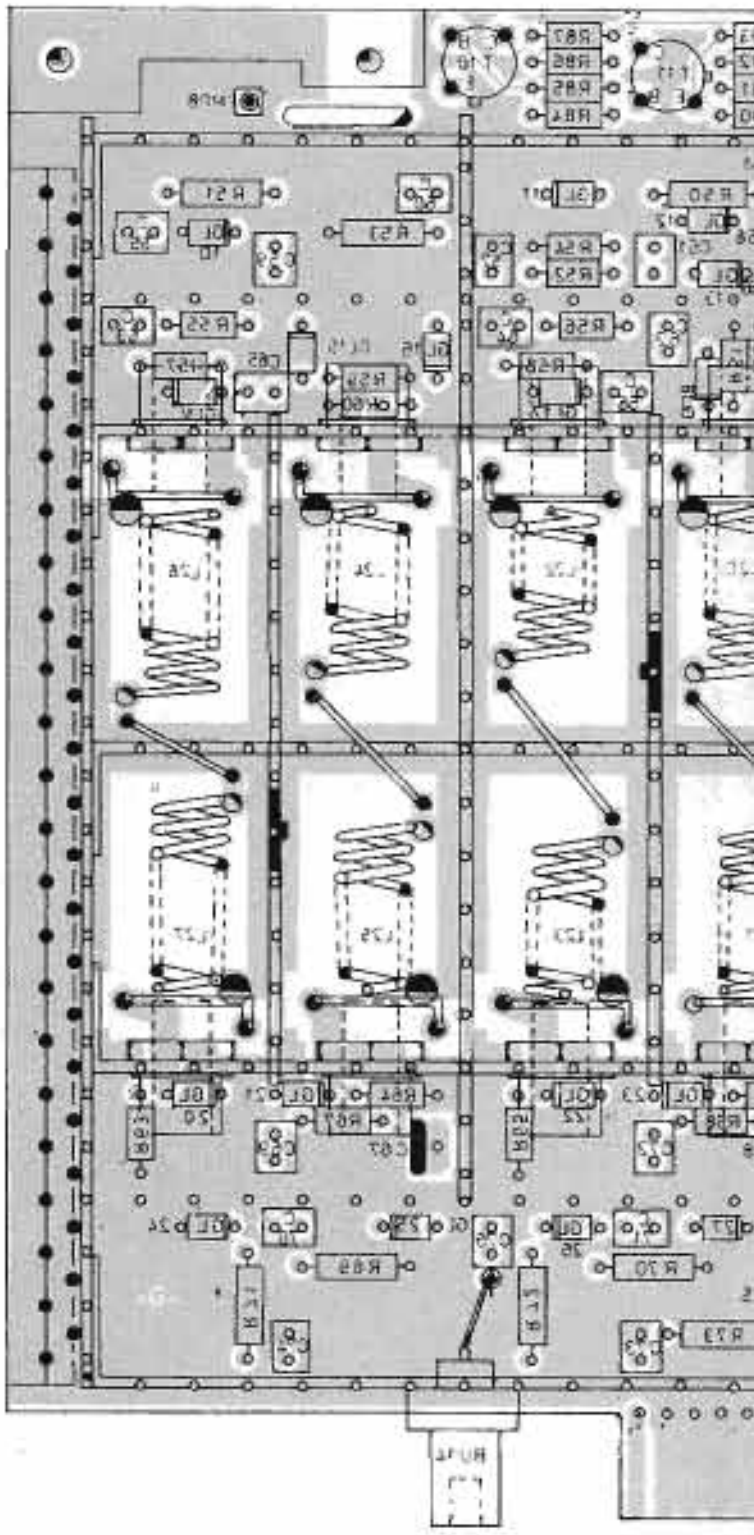
Stufe Z: 302.6812

302.6015

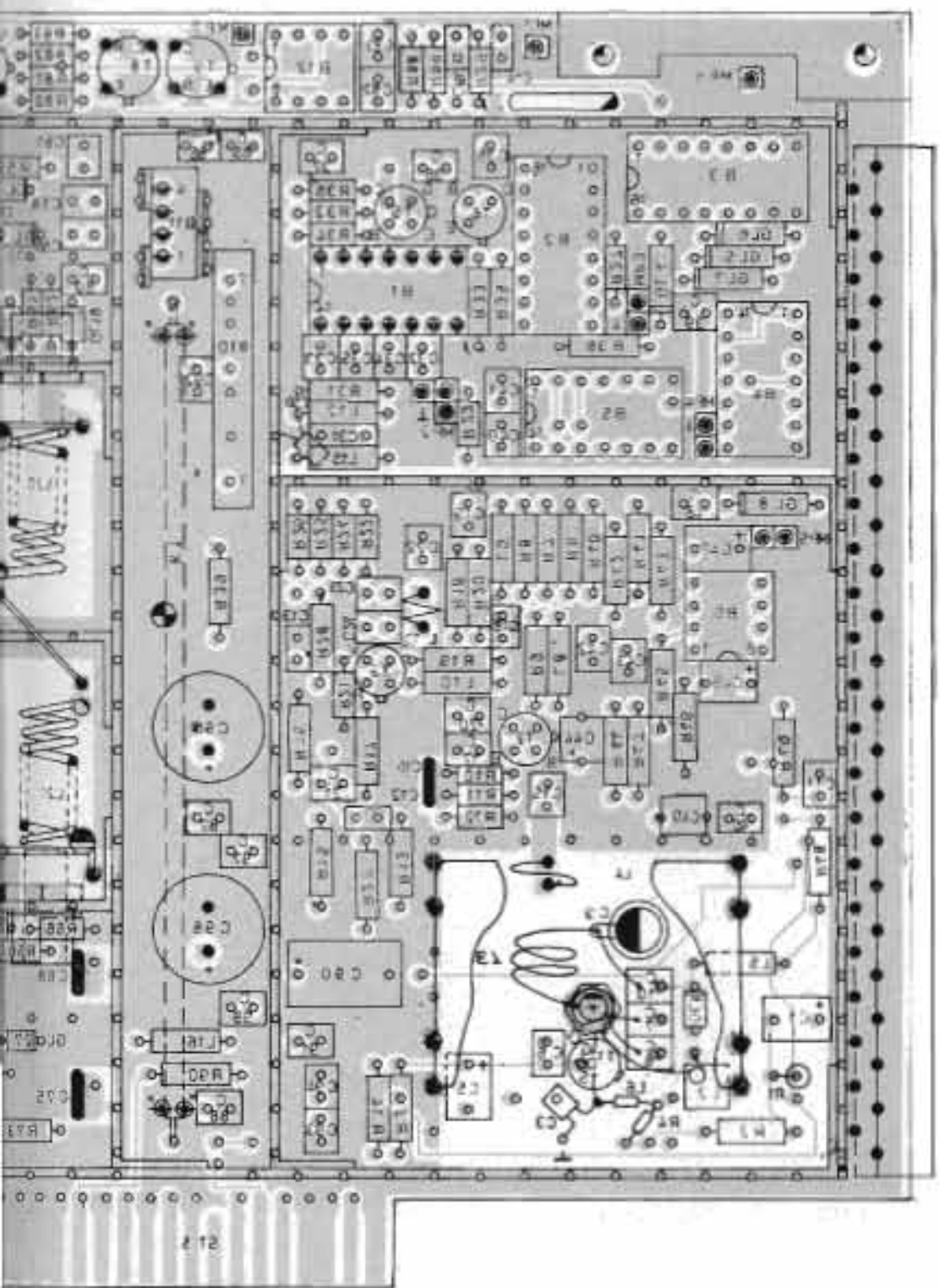
ROHDE & SCHWARZ MÜNCHEN

ISME 21.7.78

Ansicht und Leitungsfü
View of tracks on sol



ngsführung Lötseite
n solder side



0 1 2 3
ZENTIMETER

F	27829	29.81	Ox			
C	28 027	02.82	GN			
L	29853	04.83	Ox			
M	31273	07.84	CD			
N	31273	07.84	CD			

Umsetzer / Converter 2

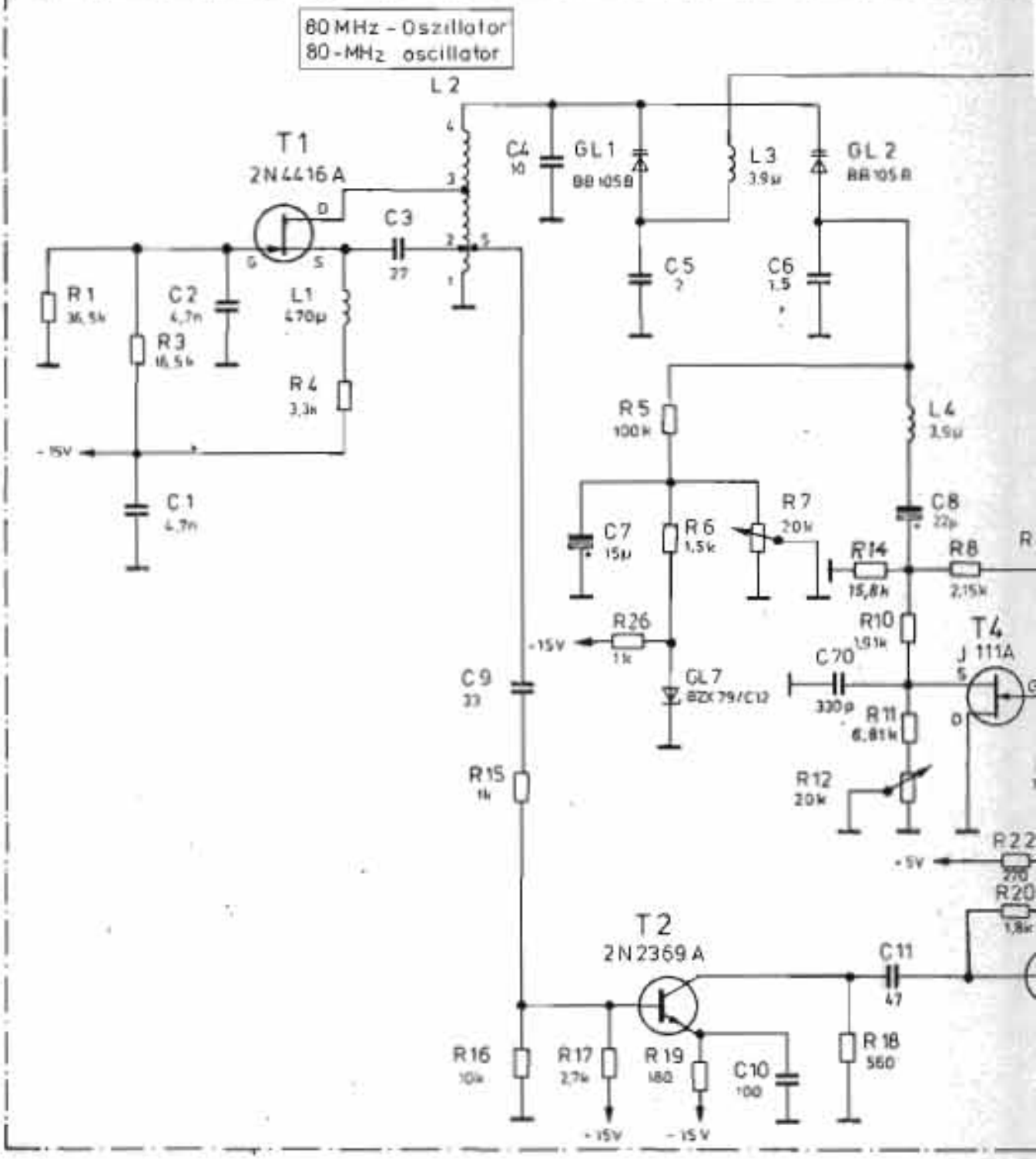
Blatt 3

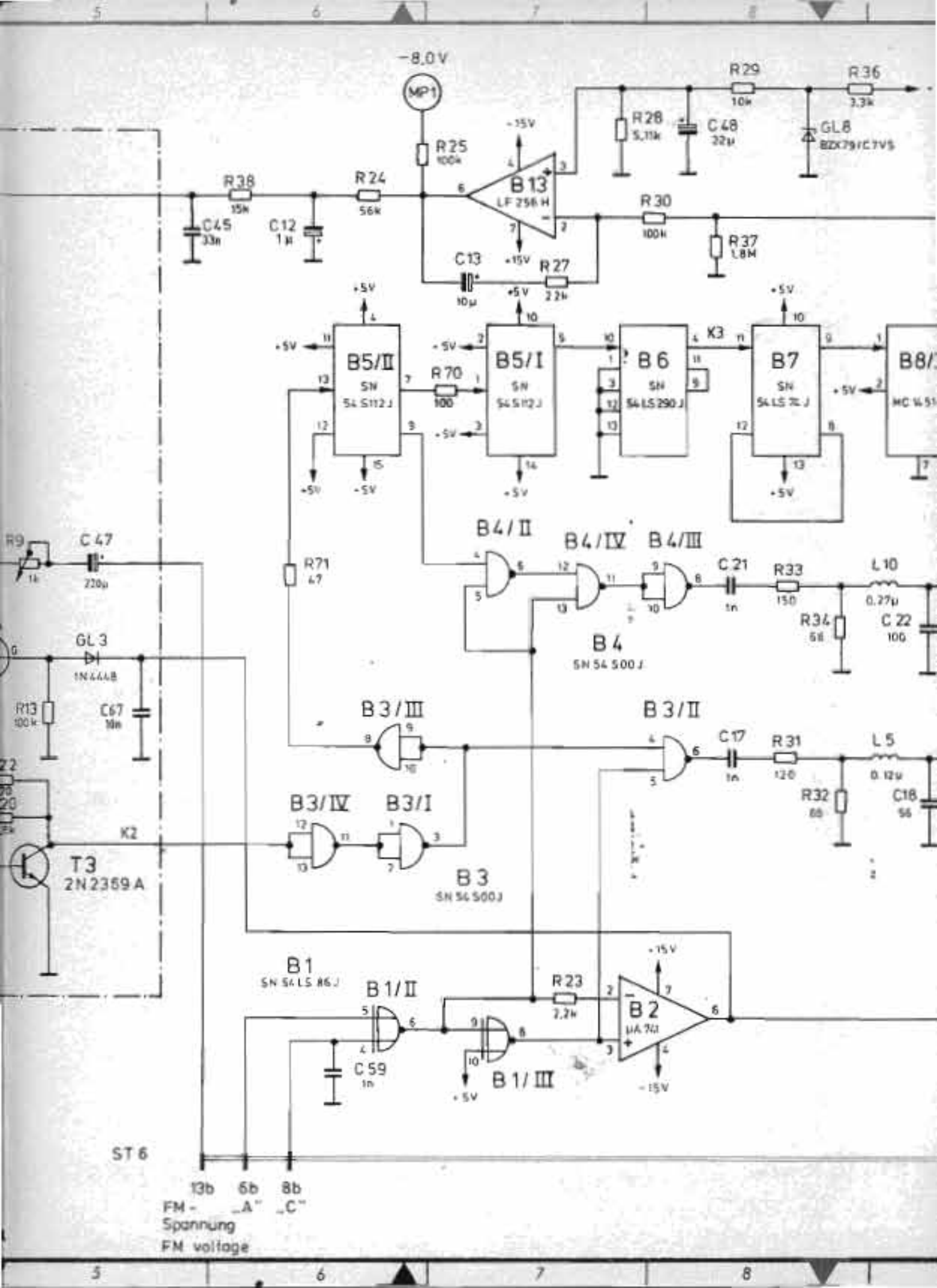
302.4812 V

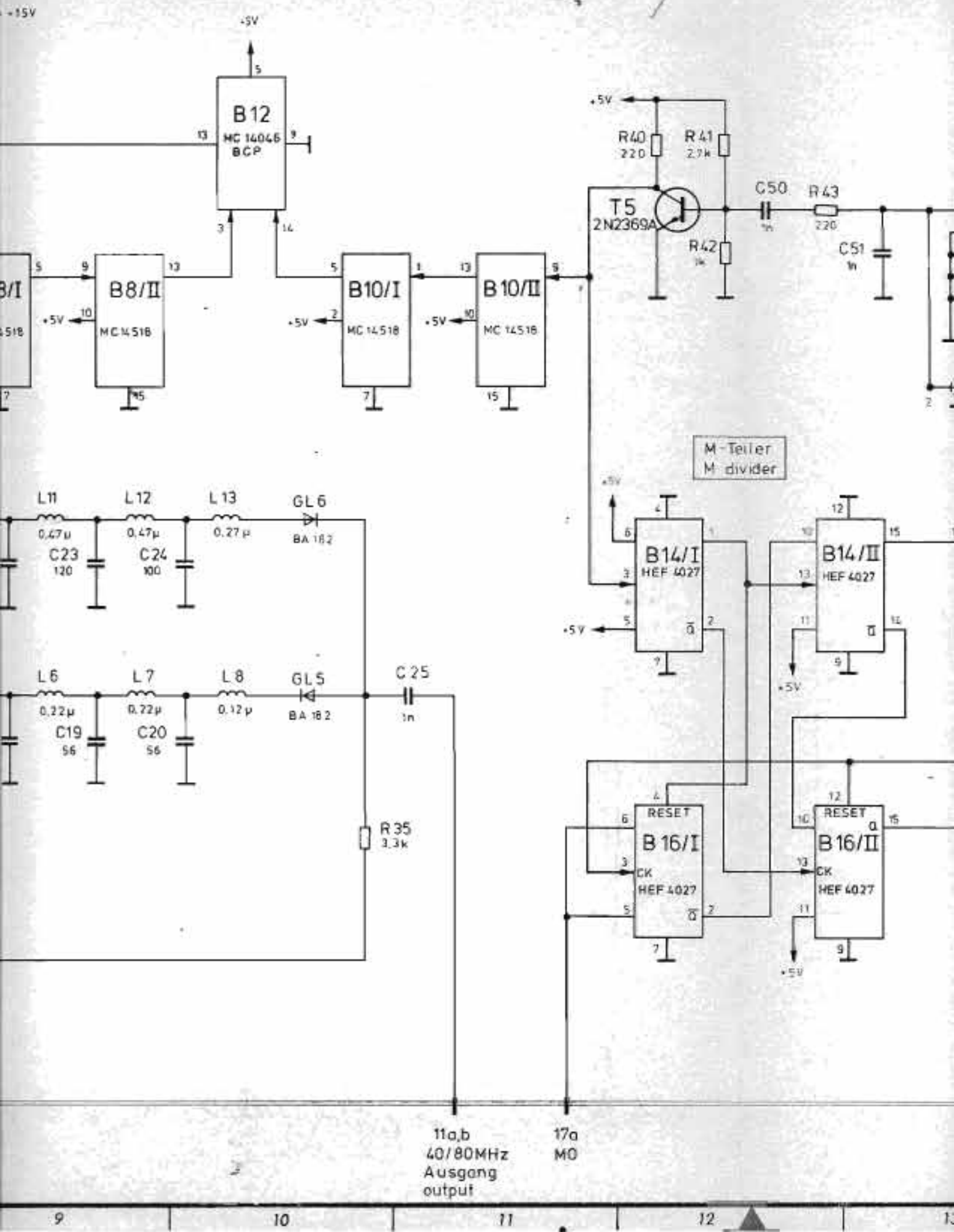
302.4812 302.6015

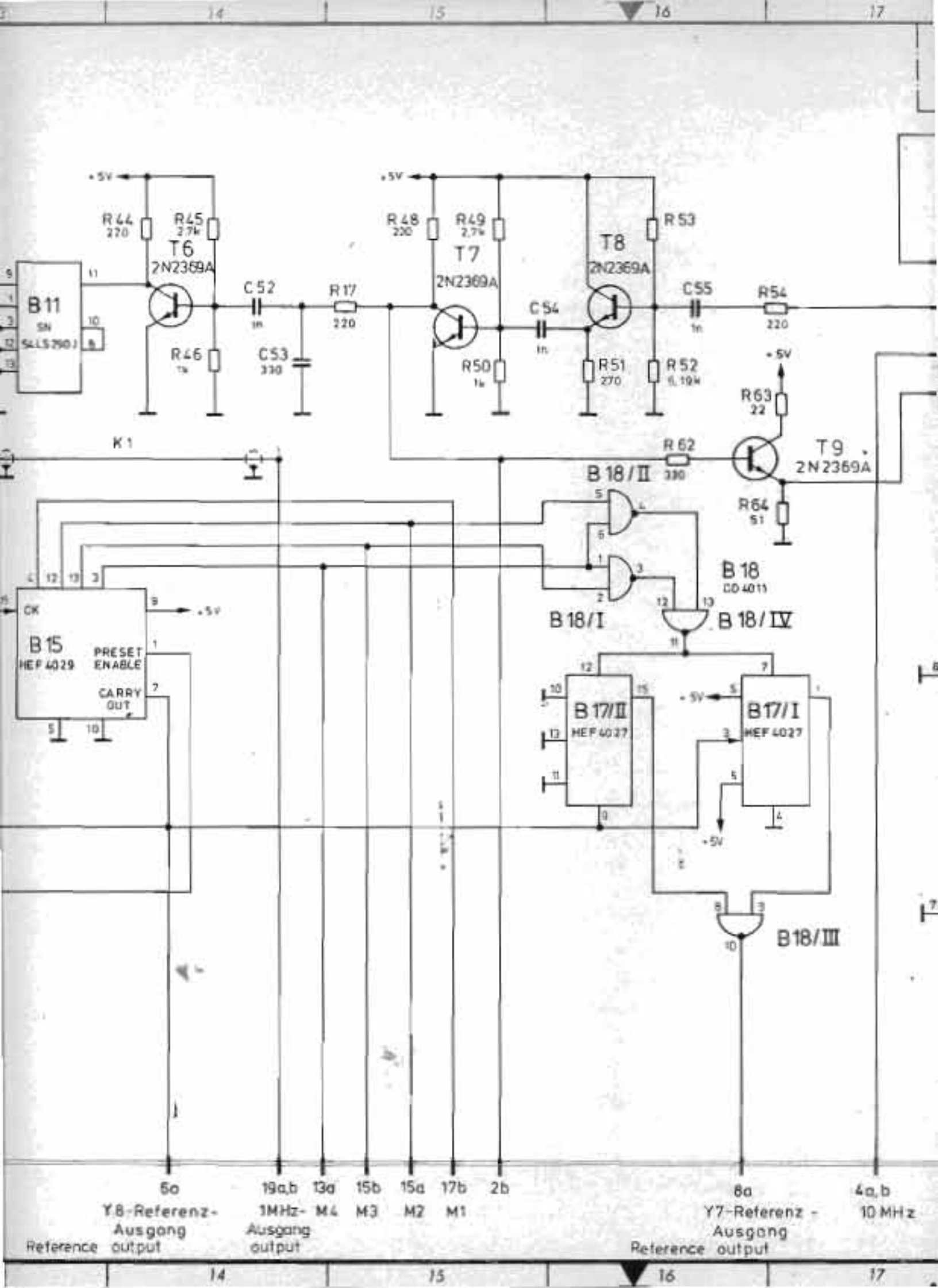
ROHDE & SCHWARZ

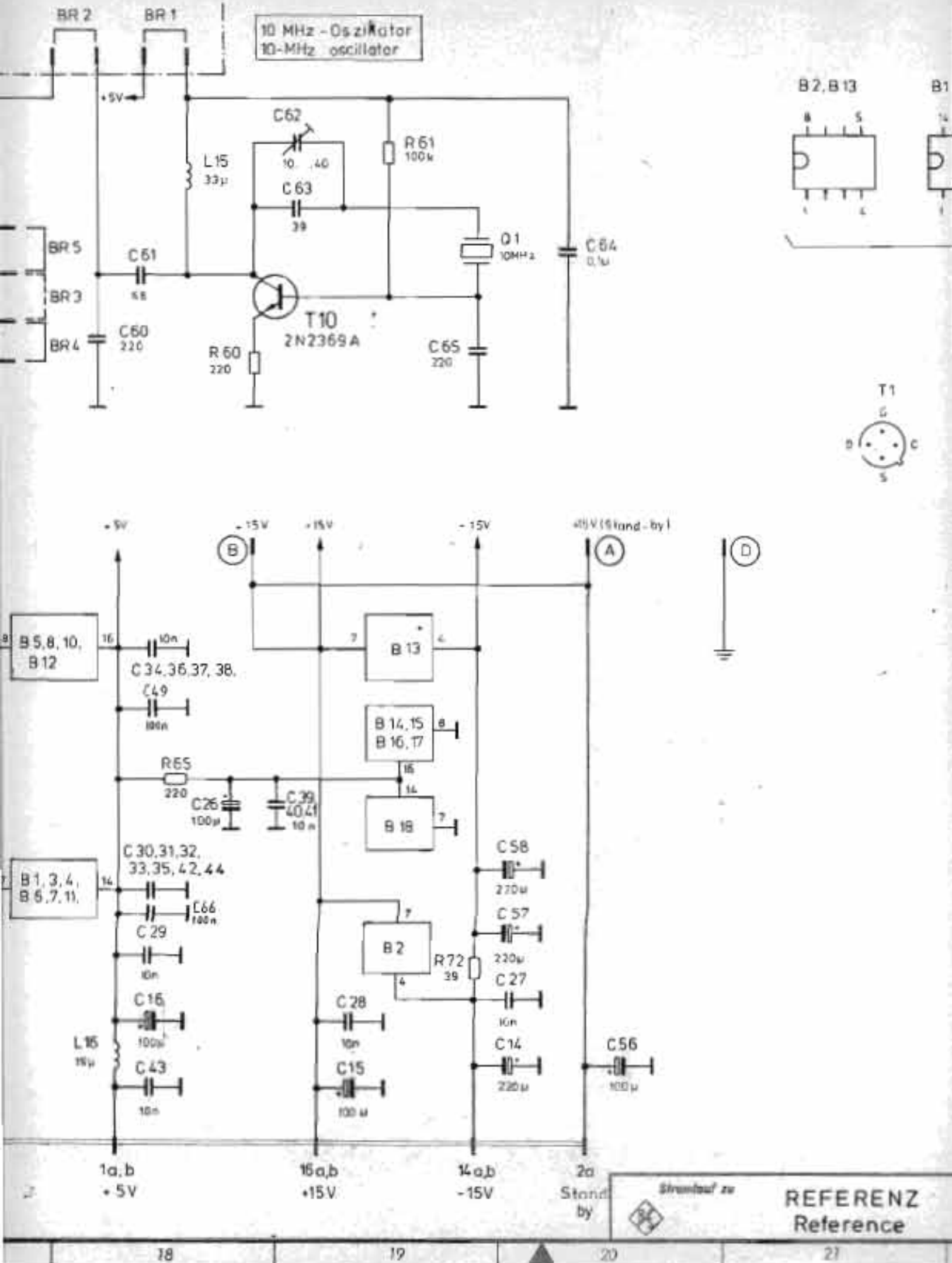
YGHE 21.7.76 Nb

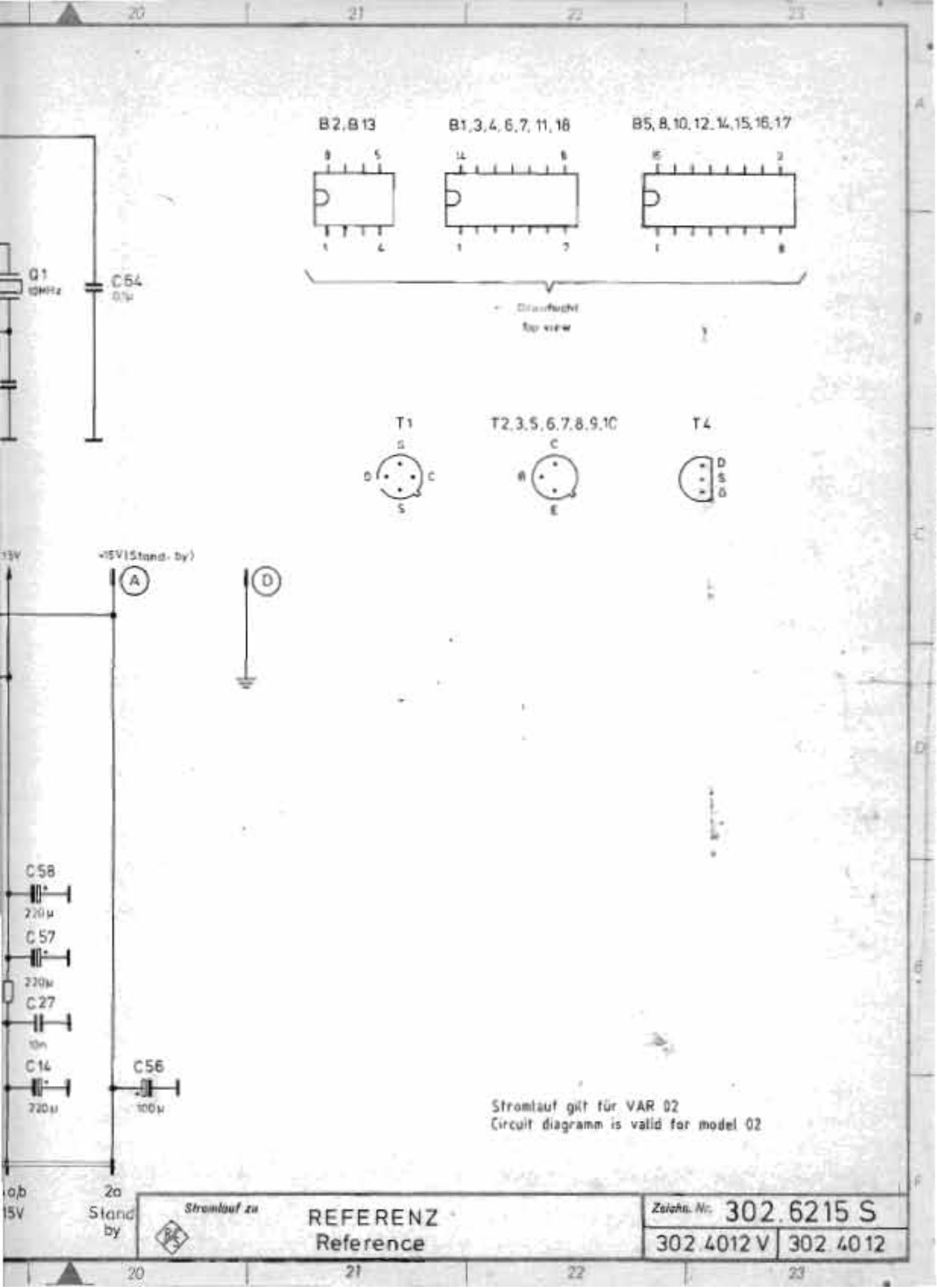

80 MHz - Oszillator
80-MHz oscillator
L2
T1
2N4416A
C4
10
GL1
BB 105B
L3
3,9µ
GL2
BB 105B
C3
27
C5
?
C6
1,5
R1
36,5k
C2
4,7n
R3
18,5k
L1
470µ
R4
3,3k
-15V
C1
4,7n
R5
100k
L4
3,9µ
C7
15µ
R6
1,5k
R7
20k
C8
22p
R14
15,8k
R8
2,15k
R26
1k
-15V
R10
1,91k
T4
J 111A
C70
330p
GL7
BZX 79/C12
R11
6,81k
C9
33
R15
1k
R12
20k
-5V
R22
270
R20
1,8k
T2
2N2369A
C11
47
R16
10k
R17
2,7k
R19
180
C10
100
R18
560
-15V
-15V
ROHDE & SCHWARZ · MÜNCHEN


-8,0 V
MP1
R25 100k
R38 15k
R24 56k
C45 33n
C12 1µ
B13 LF 256 H
-15V
+15V
R28 5,11k
C48 32µ
R29 10k
R36 3,3k
GL8 BZX79/C7V5
R30 100k
R37 1,8M
C13 10µ
R27 22k
+5V
B5/II SN 54 S112 J
B5/I SN 54 S112 J
R70 100
B6 SN 54 LS 290 J
K3
B7 SN 54 LS 74 J
B8/
MC 14 51
R9 1k
C47 220µ
B4/II
B4/IV
B4/III
B4 SN 54 S00 J
R71 47
C21 1n
R33 150
L10 0,27µ
R34 68
C22 100
GL3 1N4448
R13 100k
C67 10n
B3/III
B3/II
C17 1n
R31 120
L5 0,12µ
R32 68
C18 56
B3/IV
B3/I
K2
T3 2N2369A
B3 SN 54 S00 J
B1 SN 54 LS 86 J
B1/II
B1/III
C59 1n
R23 2,2k
B2 µA 741
ST 6
13b 6b 8b
FM - Spannung
FM voltage
"A"
"C"

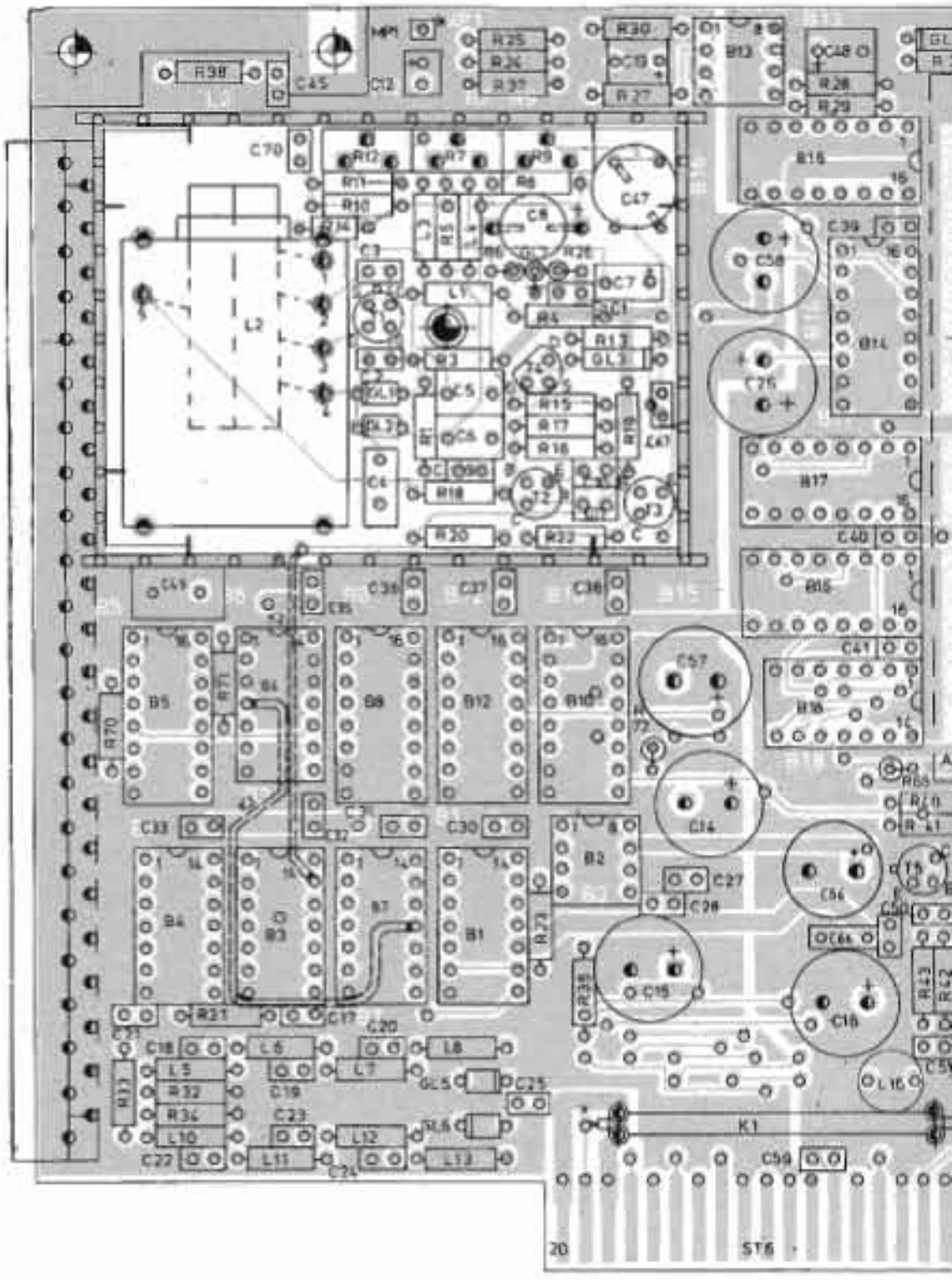

+15V
+5V
B12
MC 14046 BCP
B8/II
MC 14518
B10/I
MC 14518
B10/II
MC 14518
R40 220
R41 2.7k
R42 1k
T5 2N2369A
C50 1n
R43 220
C51 1n
M-Teiler
M divider
B14/I HEF 4027
B14/II HEF 4027
B16/I RESET CK HEF 4027
B16/II RESET CK HEF 4027
L11 0,47µ
L12 0,47µ
L13 0,27µ
GL6 BA 182
C23 120
C24 100
L6 0,22µ
L7 0,22µ
L8 0,12µ
GL5 BA 182
C19 56
C20 56
C25 1n
R35 3.3k
11a,b 40/80MHz Ausgang output
17a MO

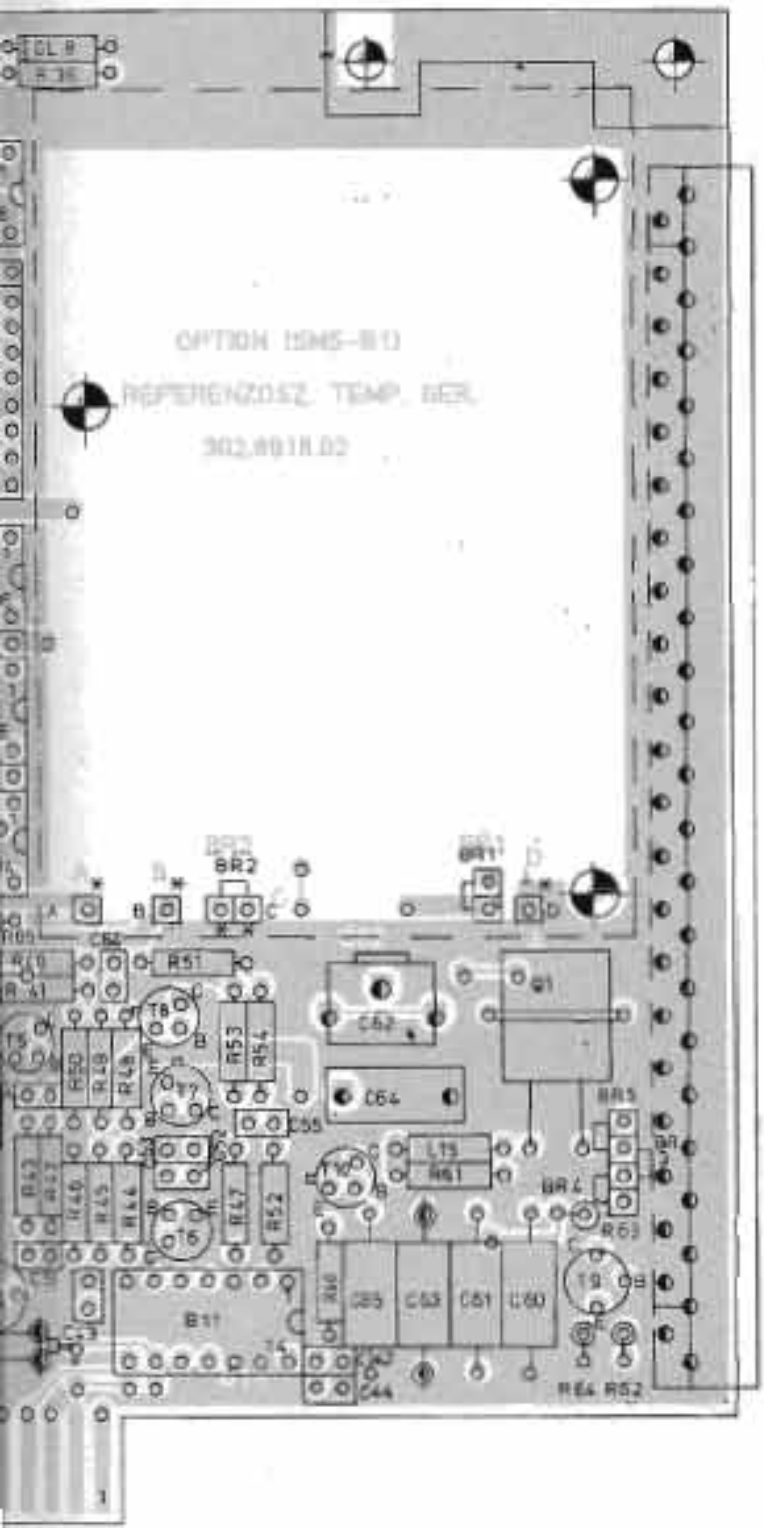

+5V
R44 270
R45 2,7k
T6 2N2369A
B11 SN 54LS290J
C52 1n
R17 220
C53 330
R46 1k
R48 220
R49 2,7k
T7 2N2369A
R50 1k
C54 1n
T8 2N2369A
R53
R51 270
R52 6,19k
C55 1n
R54 220
R63 22
T9 2N2369A
R62 330
R64 51
K1
B18/II
B18 CD4011
B18/I
B18/IV
B18/III
B15 HEF4029
CK
PRESET ENABLE
CARRY OUT
B17/II HEF4027
B17/I HEF4027
6a Y8-Referenz-Ausgang Reference output
19a,b 1MHz-Ausgang output
13a M4
15b M3
15a M2
17b M1
2b
8a Y7-Referenz-Ausgang Reference output
4a,b 10 MHz


BR 2
BR 1
10 MHz - Oszillator
10-MHz oscillator
+5V
C62
10 ... 40
L15
33µ
C63
39
R61
100k
BR 5
BR 3
BR 4
C61
C60
220
R60
220
T10
2N2369A
Q1
10MHz
C64
0,1µ
C65
220
B2, B13
T1
+5V
-15V
+15V
-15V
+8V (Stand-by)
B 5,8, 10, B 12
10n
C 34,36,37, 38,
C49
100n
B 13
B 14,15 B 16,17
R65
220
C26
100µ
C39 40,41
10 n
B 18
C 30,31,32, 33,35, 42,44
B 1, 3, 4, B 6, 7, 11,
C66
100n
C 29
10n
C16
100µ
L16
15µ
C43
10n
B2
R72
39
C28
10n
C15
100 µ
C58
220µ
C 57
220µ
C 27
10n
C14
220µ
C56
100µ
1a,b
+5V
16a,b
+15V
14a,b
-15V
2a
Stand by
Stromlauf zu
REFERENZ
Reference



Stromlauf gilt für VAR 02
Circuit diagramm is valid for model 02


R38
C45
C12
R25
R26
R27
R30
C18
B13
C48
R28
R29
B16
C70
R12
R7
R9
R11
R8
R10
C47
C8
C39
C58
B14
C3
L1
C7
C1
R4
R13
GL3
C5
C76
R15
R17
R16
C6
C90
R18
T2
T3
R20
R22
B17
C40
C49
C35
C37
C36
B15
C41
B5
R71
B4
B8
B12
B10
B18
C57
R70
R72
C33
C32
C30
C14
B2
C27
C28
C56
B4
B3
B7
B1
R21
C15
C16
R31
C17
C20
C18
L6
L8
L5
L7
R32
C19
GL5
C25
R34
C23
L10
L12
GL6
C22
L11
C24
L13
K1
C59
20
ST6

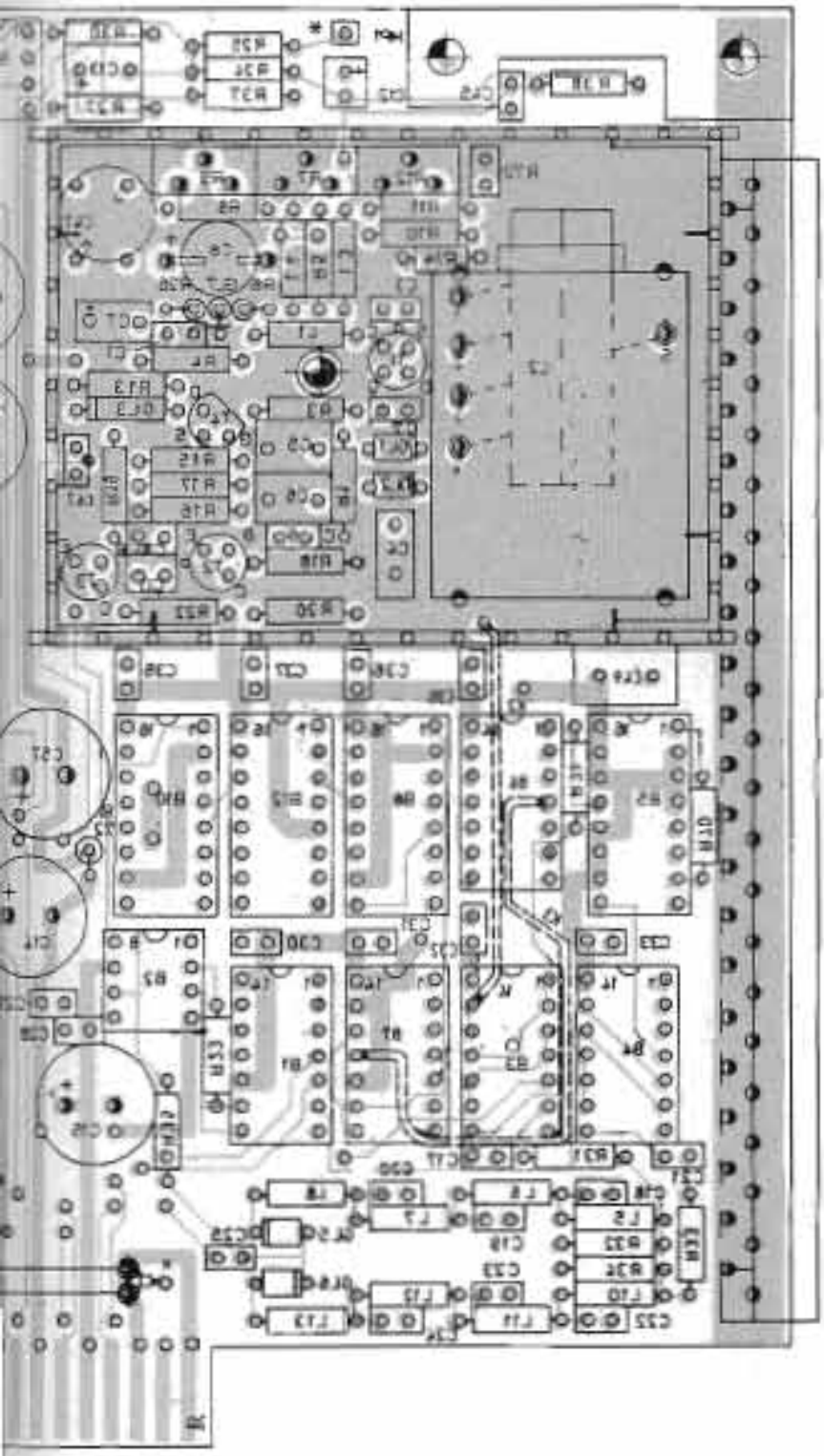


Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

0 1 2 3
ZENTIMETER

A	25 166	05 79	Gn				2 1	
B	25 166	10 79	Gn					
C	25 432	03 80	Sy					
E	28027	11 81	Jü					
F	28613	09 82	Ie	KONST.				
G	29191	12 82	Ib		16.11.78	Wm	Referenz	Z
K	29853	05 83	Ce					
L	30593	10 83	Cb					
				ROHDE & SCHWARZ			302.6215	3
				SMS			302 6215 V	302 3012

REFERENZ
302-6215



Ansicht und Leitungsführung Lotseite
View of tracks on solder side

0 1 2 3
ZENTIMETER

A	25 166	08.79	Dm
B	25 166	10.79	Gm
C	25 932	03.80	Sw
E	28627	11.81	Wi
F	28613	08.82	Ja
G	29391	12.82	Ja
K	29853	5.83	Ch
L	30549	10.83	CD

2 : 1

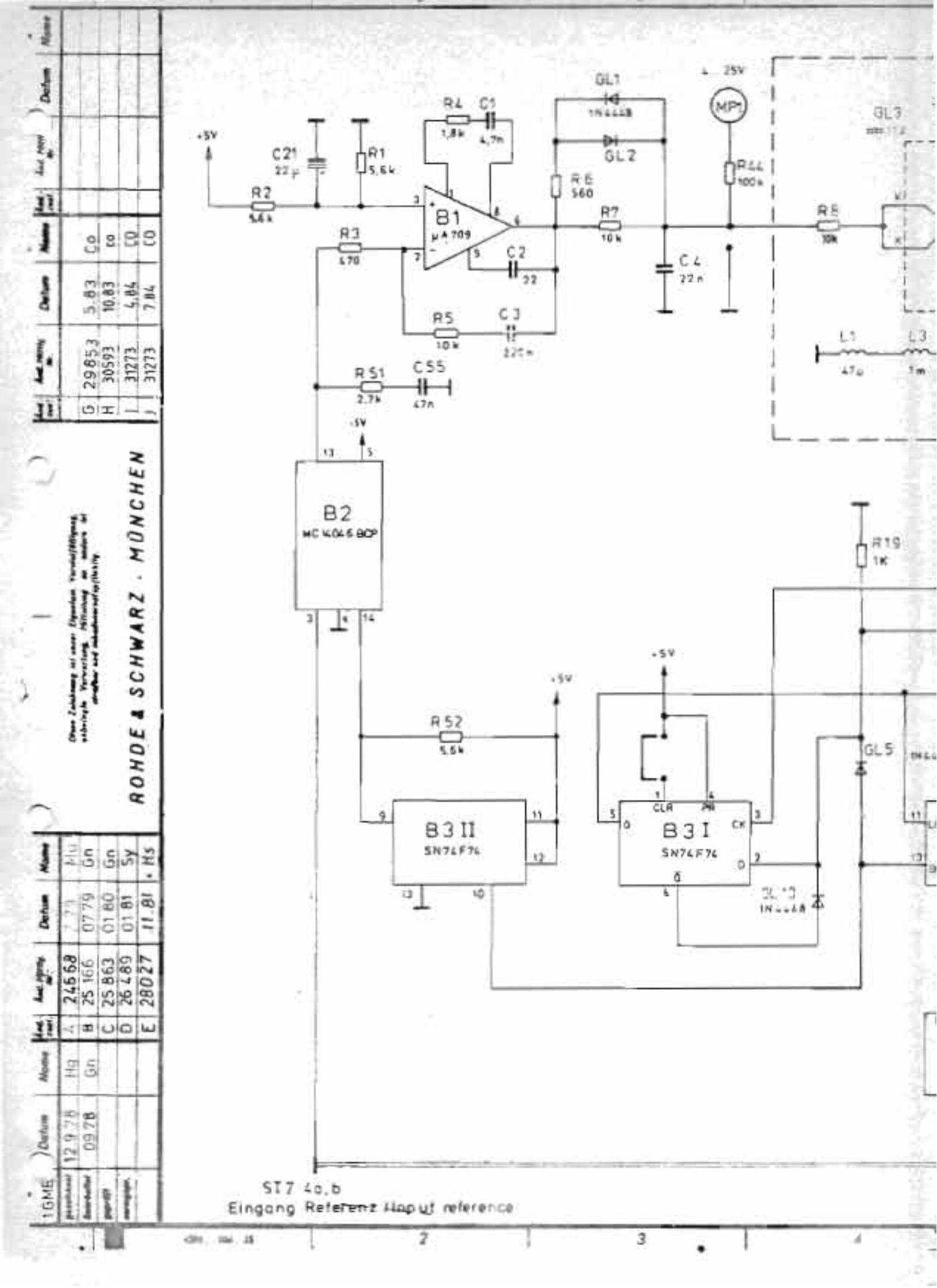
Referenz

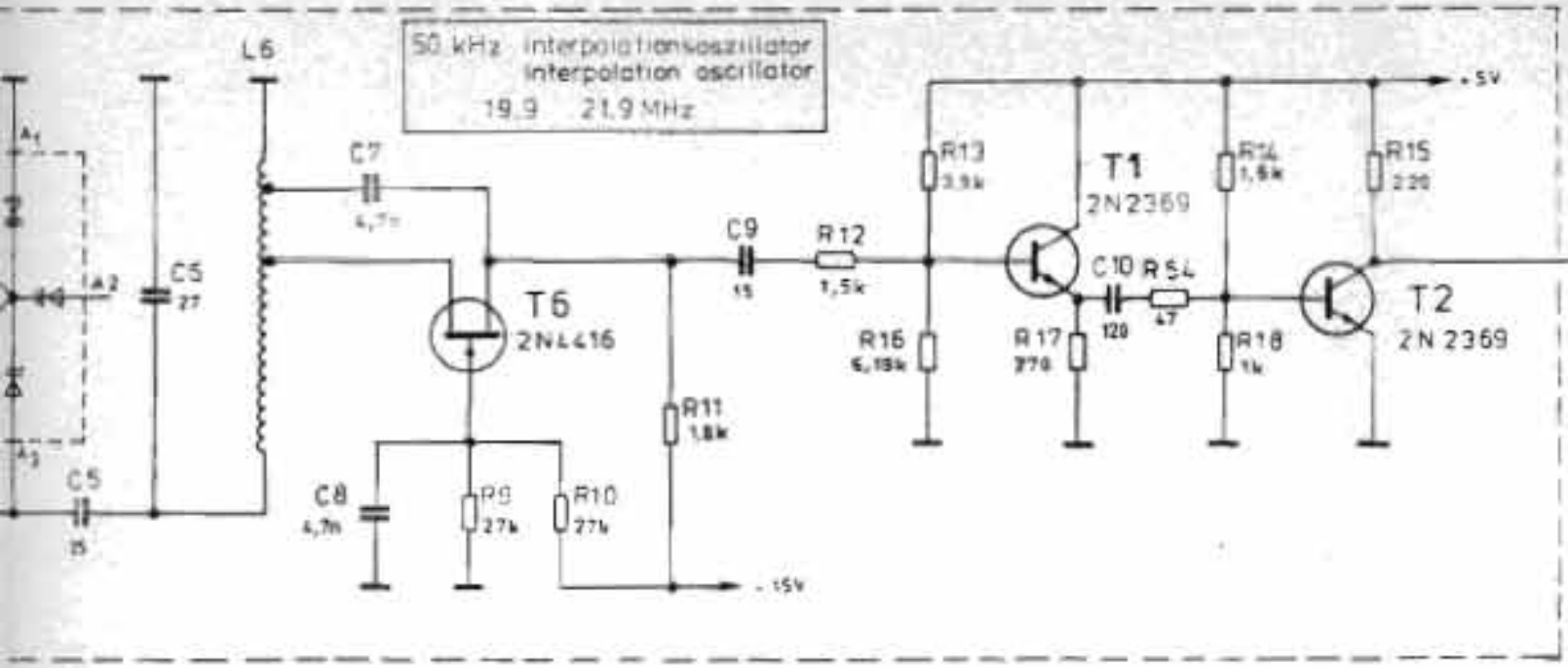
Z

RÖHDE & SCHWARZ

302. 6215

SMS


ROHDE & SCHWARZ · MÜNCHEN
B1
µA 709
B2
MC 4046 BCP
B3 II
SN74F74
B3 I
SN74F74
R1 5,6k
R2 5,6k
R3 470
R4 1,8k
C1 4,7n
C21 22µ
C2 22
C3 220n
C4 22n
R5 10k
R6 560
R7 10k
R8 10k
R44 100k
R51 2,7k
C55 47n
R52 5,6k
R19 1K
GL1 1N4448
GL2
GL3
GL5
MP1
L1 47µ
L3 1m
+5V
ST7 4a,b
Eingang Referenz Hookup reference

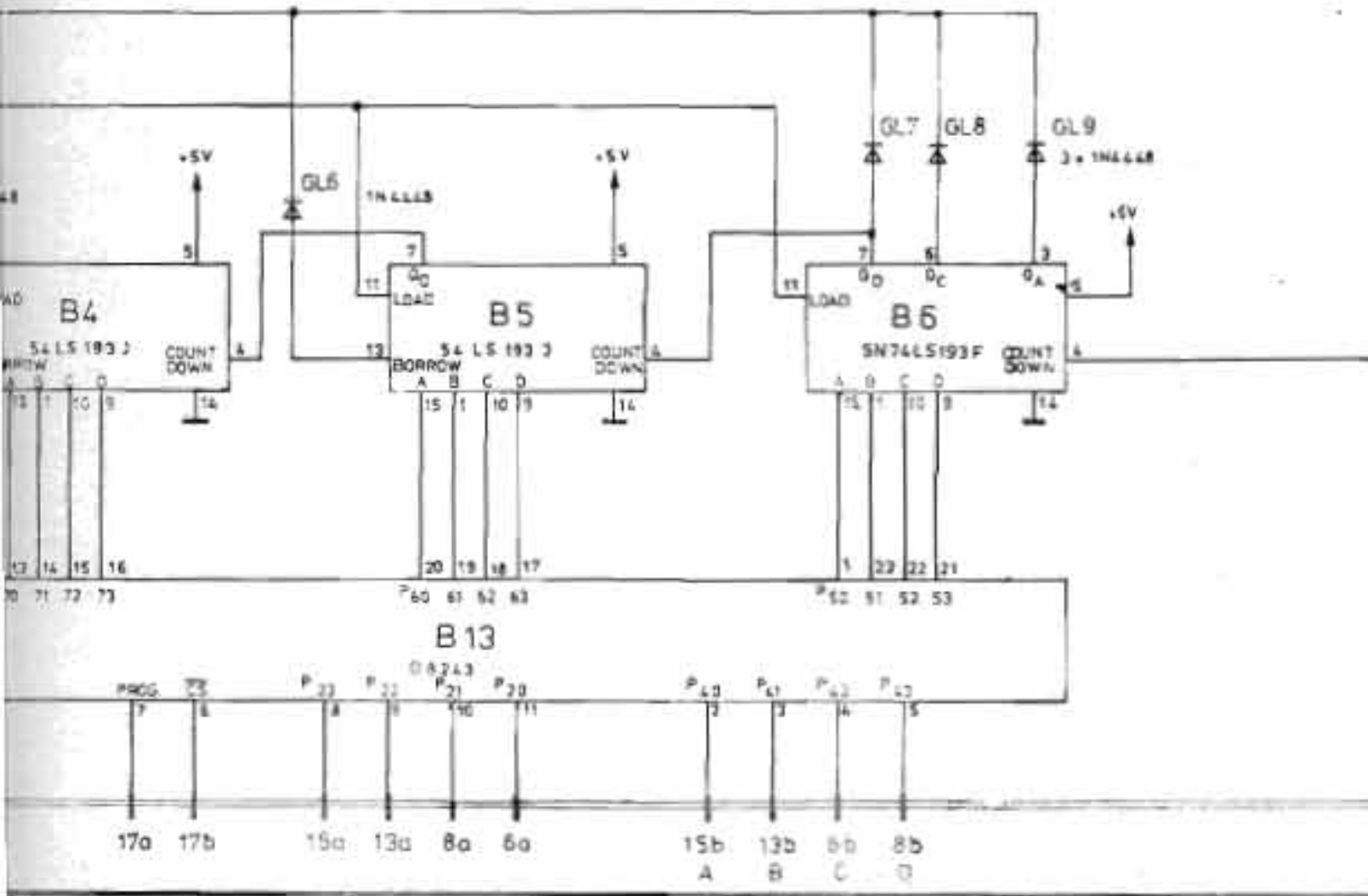


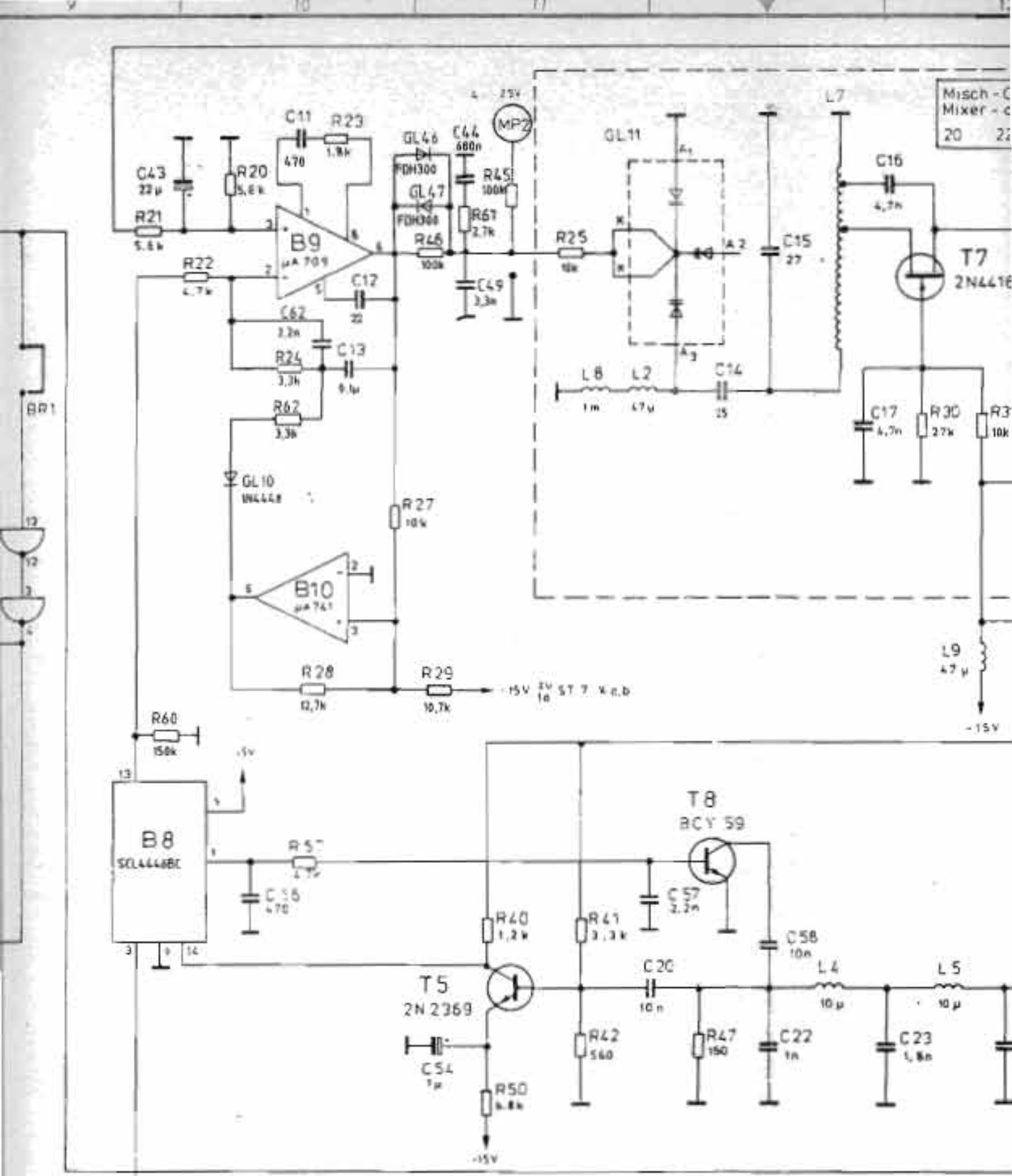
B7

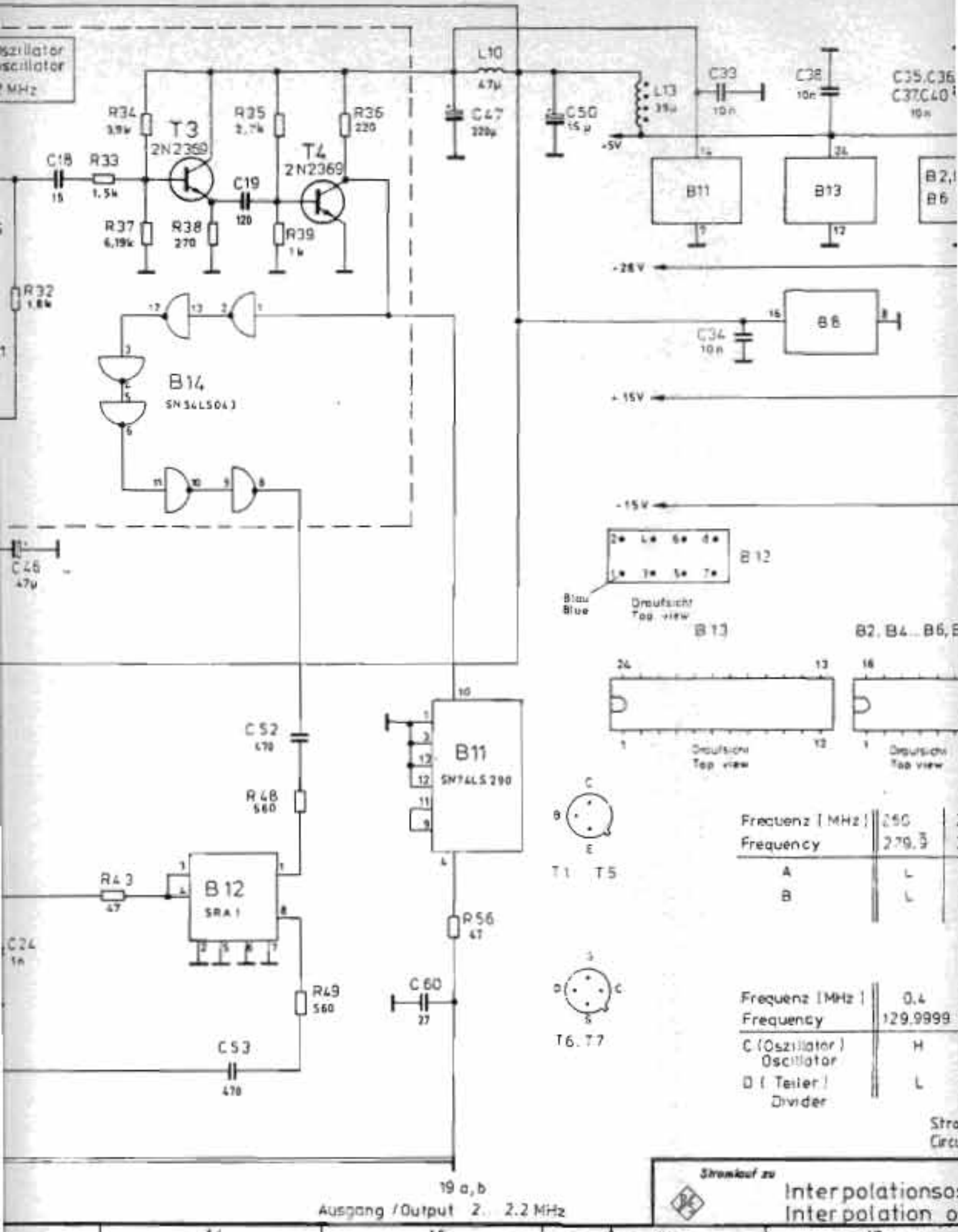
SN54LS043

B7

N Teiler
N divider




Misch - C
Mixer - c
20 22
C11
R23
470
1,8k
C43
22µ
R20
5,6k
R21
5,6k
B9
µA 709
C12
22
C62
2,2n
R24
3,3k
C13
9,1µ
R62
3,3k
R22
4,7k
GL46
FDH300
GL47
FDH300
C44
680n
R45
100k
R61
2,7k
R46
100k
MP2
+ 25V
R25
10k
GL11
A1
A2
A3
C15
27
L7
C16
4,7n
T7
2N4416
L8
1m
L2
47µ
C14
25
C17
4,7n
R30
27k
R3
10k
L9
47µ
-15V
GL10
1N4448
R27
10k
B10
µA 741
R28
12,7k
R29
10,7k
-15V zu ST 7 Kab
R60
150k
+5V
B8
SCL4446BC
R57
2,7k
C18
470
T8
BCY 59
C57
2,2n
R40
1,2k
R41
3,3k
C58
10n
T5
2N 2369
C20
10n
L4
10µ
L5
10µ
C54
1µ
R42
560
R47
150
C22
1n
C23
1,8n
R50
6,8k
-15V
11a, b
Eingang / Input 100 135 MHz
9
10
11
13

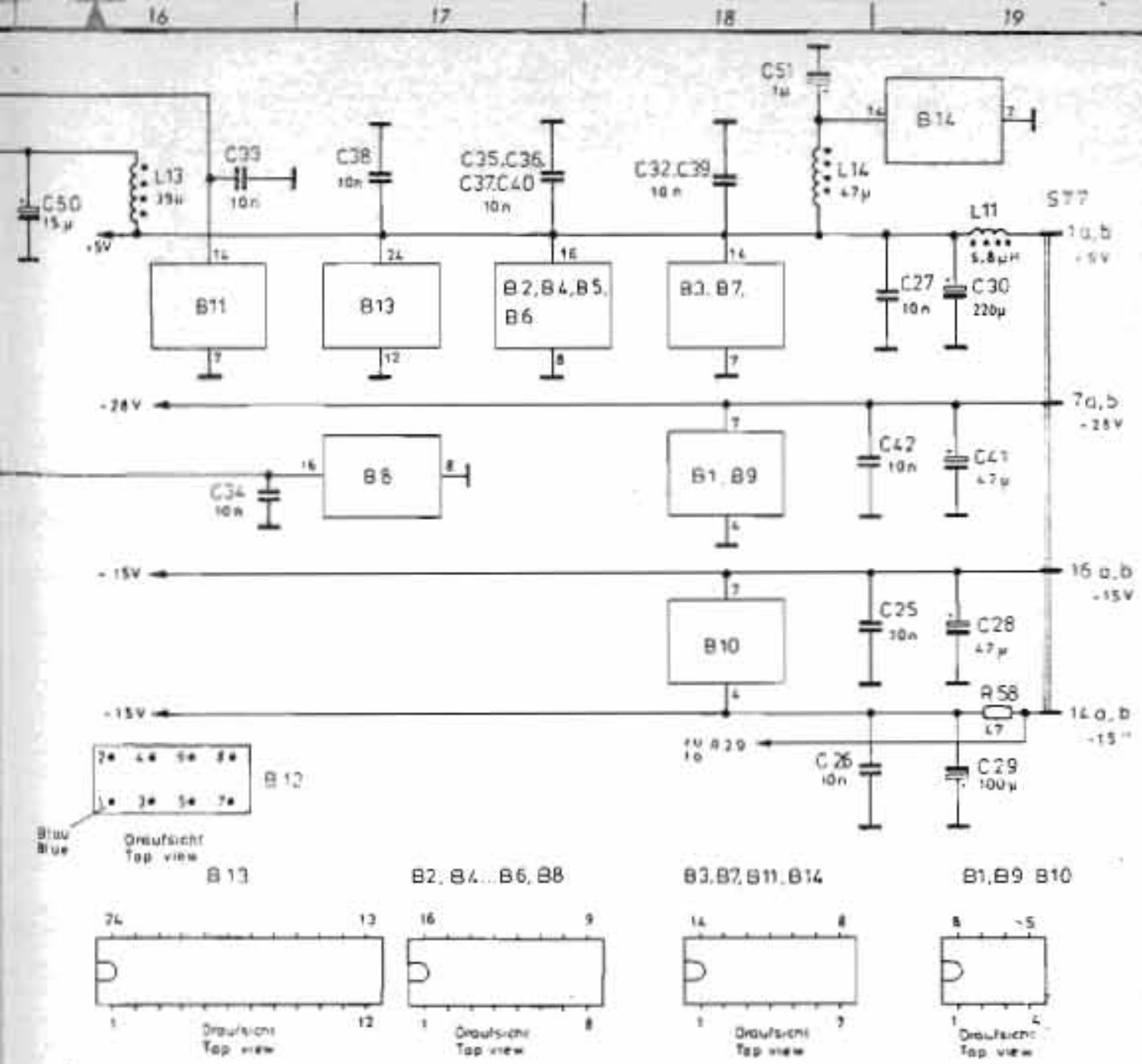


Frequenz [MHz]	250	
Frequency	279.3	
A	L	
B	L	

Frequenz [MHz]	0.4
Frequency	129.9999
C (Oszillator) Oscillator	H
D (Teiler) Divider	L

Stro
Circ

Stromlauf zu
Interpolationsos
Interpolation o



T1 T5

Frequenz [MHz] / Frequency	250 279.9̄	280 319.9̄	320 359.9̄	360 379.9̄	380 399.9̄	400 439.9̄	440 479.9̄	480 520
A	L	H	L	H	L	H	L	H
B	L	L	H	H	L	L	H	H

T6, T7

Frequenz [MHz] / Frequency	0.4 129.9999	130 189.9999	190 259.9999	260 379.9999	380 520	520.0001 789.9999	790 1040
C (Oszillator) / Oscillator	H	L	H	L	H	L	H
D (Teiler) / Divider	L	H	H	L	L	L	L

Stromlauf gilt für VAR 02
Circuit diagramm is valid for model 02

Stromlauf zu

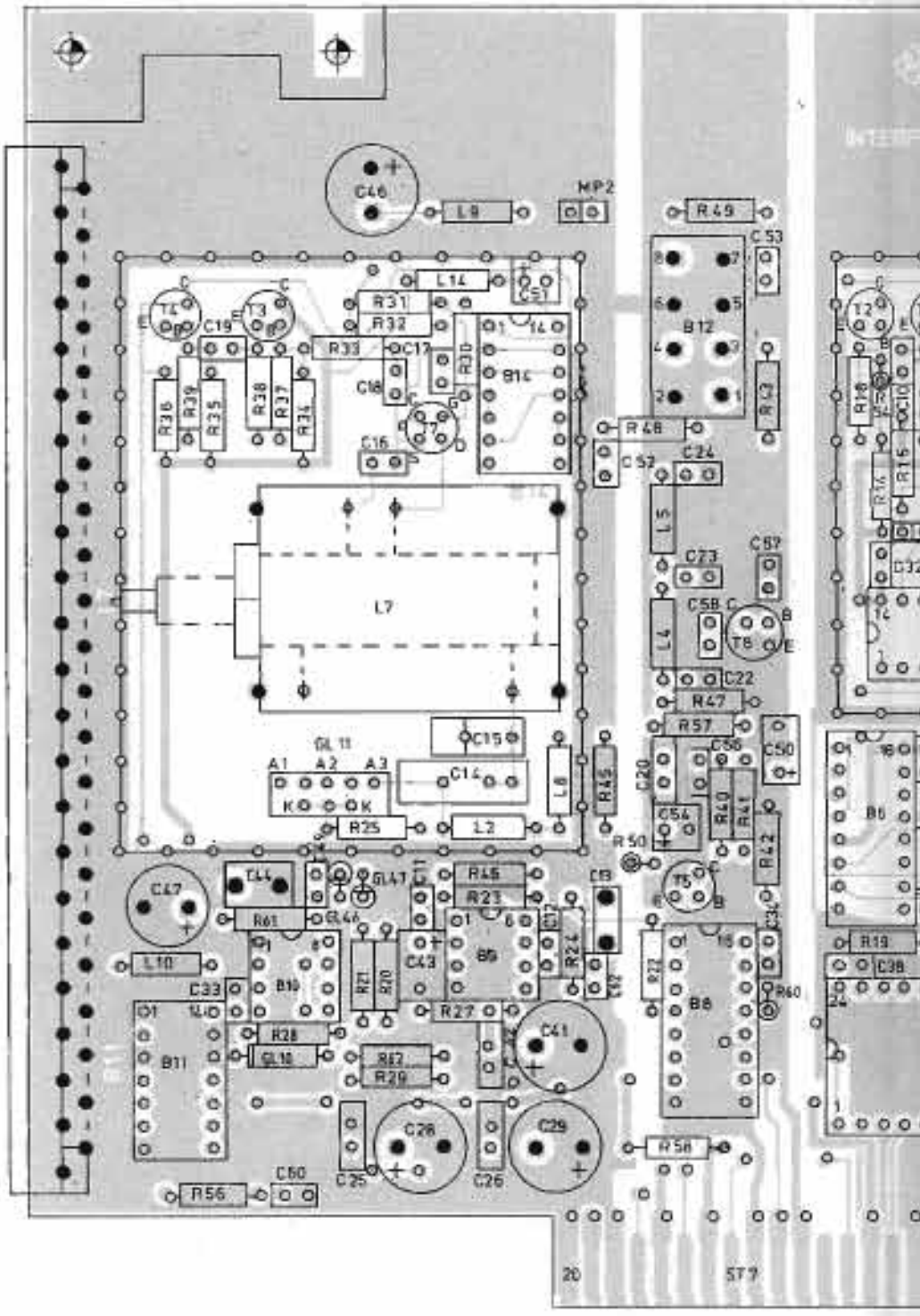
Interpolationsoszillator -50kHz
Interpolation oscillator -50kHz

Z

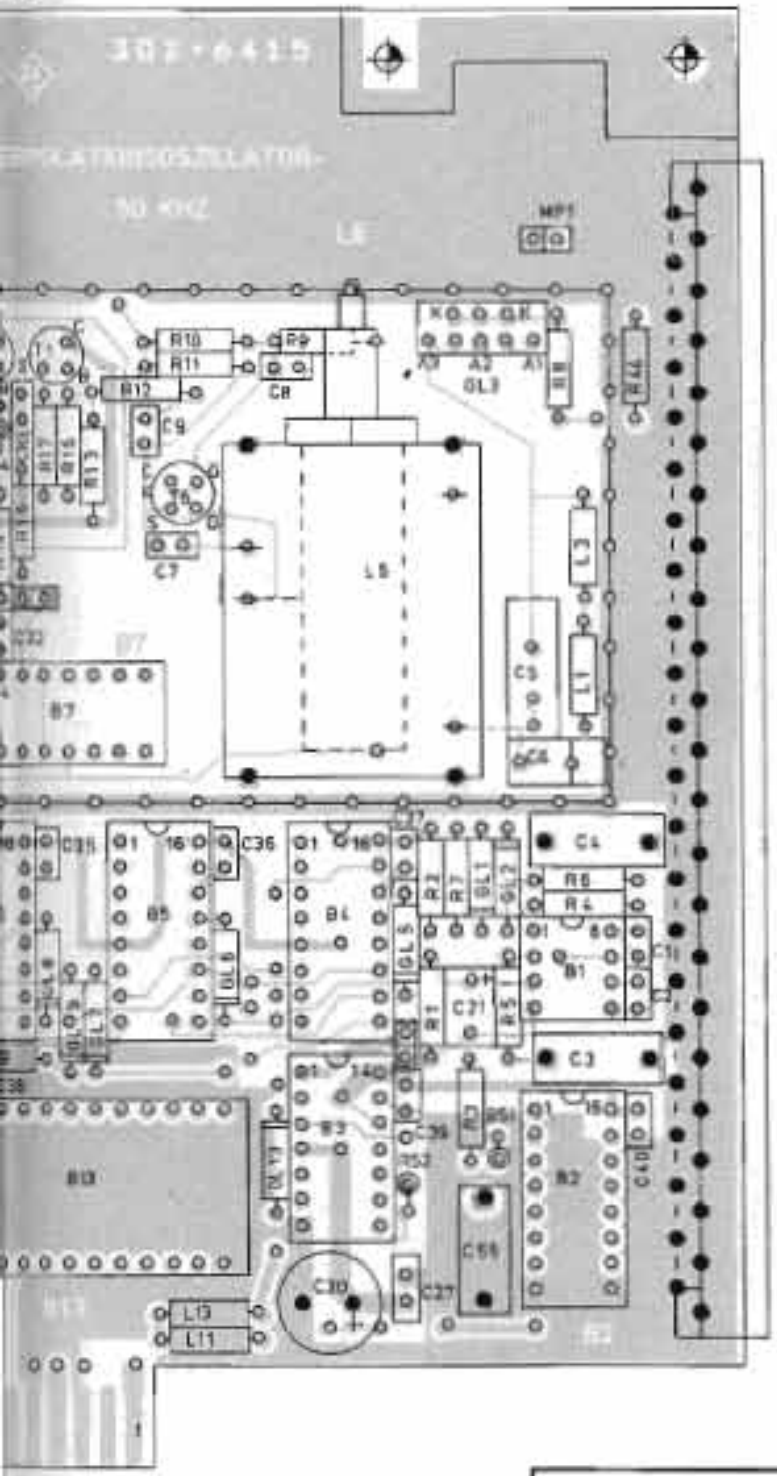
Zeichn. Nr. 302.6415 S

302.4012V | 302.4012

Ansicht und Leitungsführung Bau
View of tracks on component side



Bauteilseite
side



1 2 3 cm

A	24545	10.78	MU				
B	25166	07.79	Gn				
C	25169	10.79	Gn				
D	25853	01.80	Gn				
E	28027	11.81	Mü				
F	29391	12.82	B				
K	29853	05.83	Ca				

	Name	Tag	Norm
Gezeichnet		22.8.78	Wm
Geprüft			
Norm			

Maßstab 2 : 1

Benennung
Interpolationsoszillator - 50 kHz
Interpolation oscillator 50 kHz

Z

ROHDE & SCHWARZ MÜNCHEN

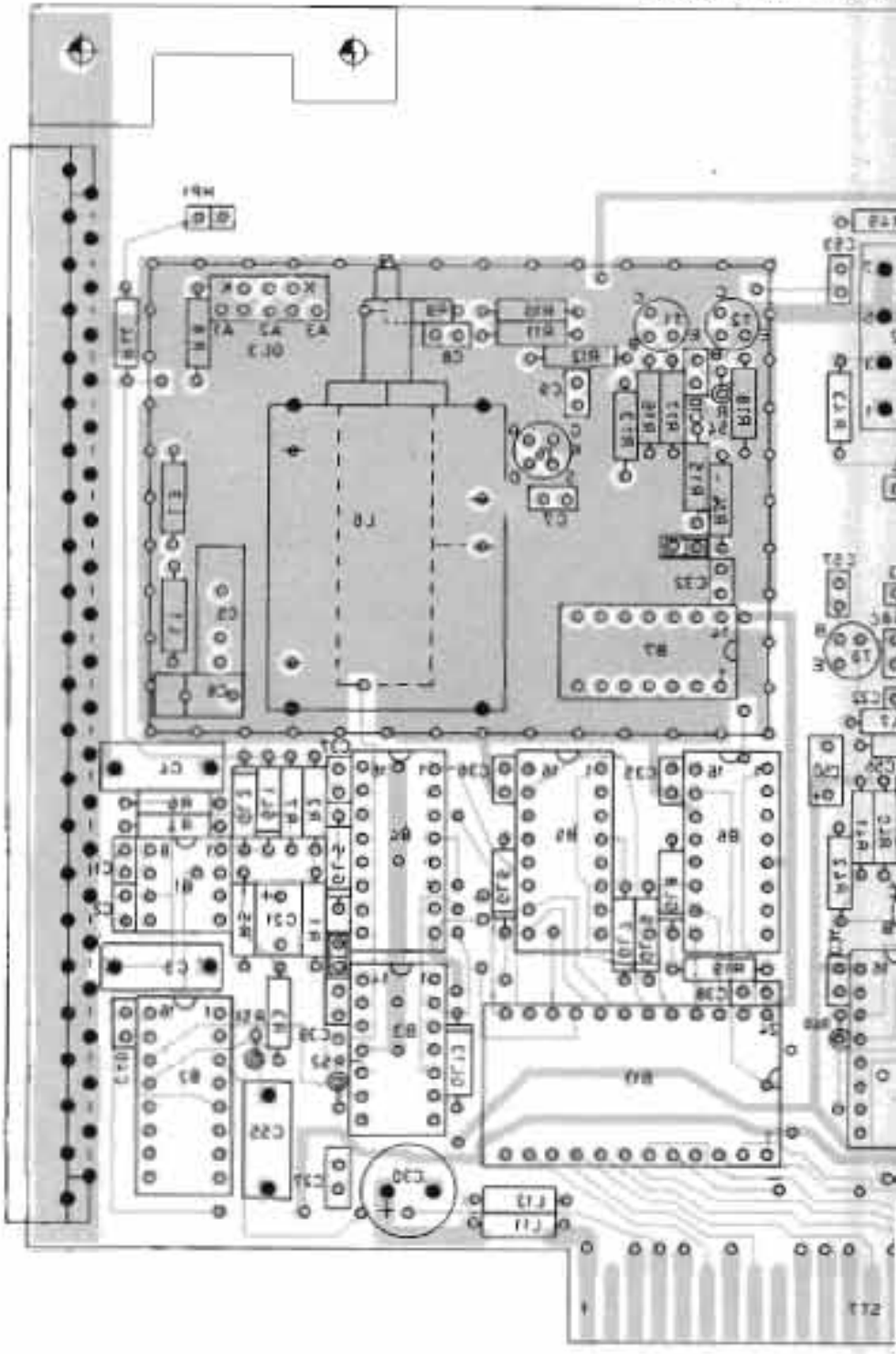
302 6415

Blatt 2 / 3

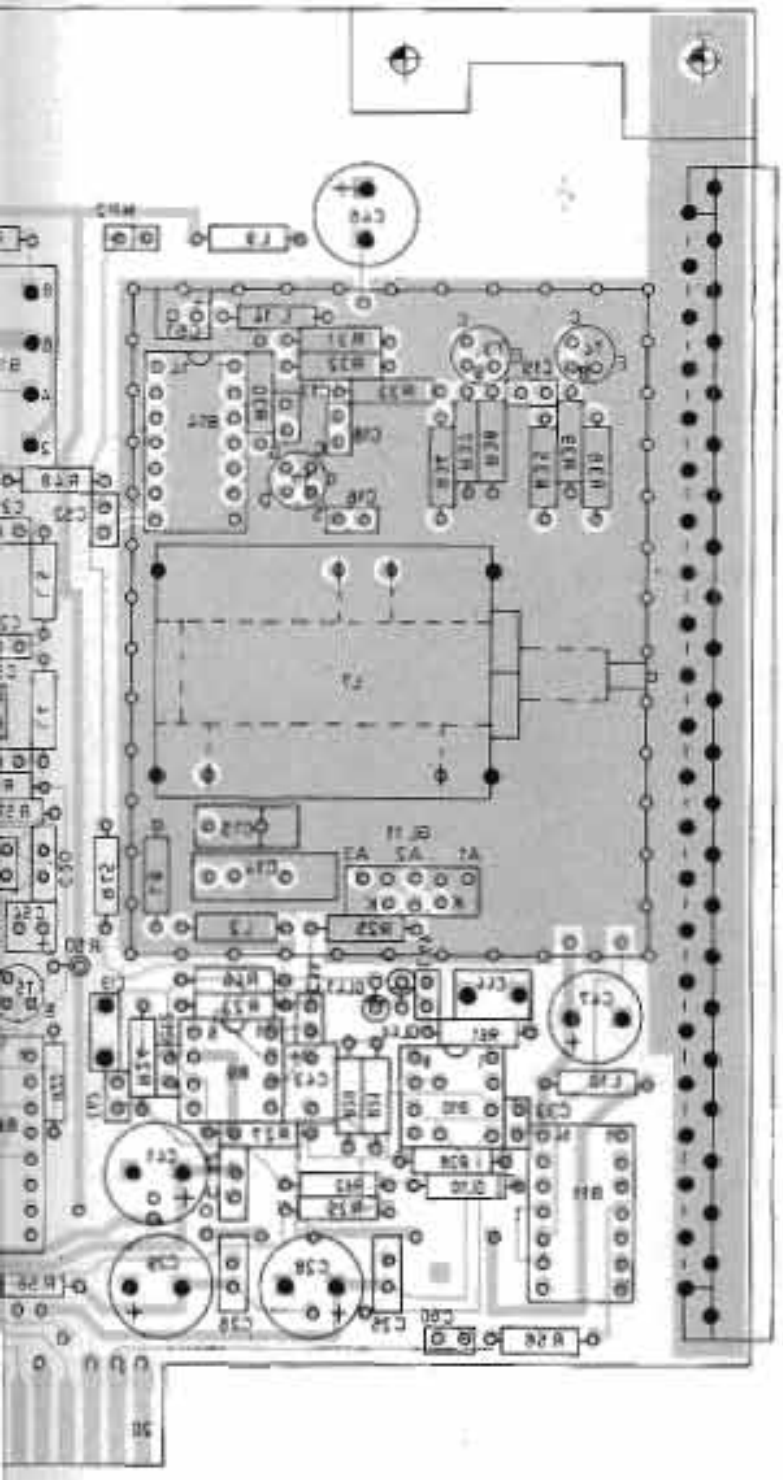
Ers. f. 302 4012

Ers. d. 302 4006V

Ansicht und Leitungsf
View of tracks on solde



uhrung Lotseite
r side



A	24545	10.78	MU
B	25168	07.79	Sm
C	25168	10.79	Sm
D	25863	01.80	Sm
F	26027	11.81	Hi
H	29391	12.82	Ri
K	29853	05.83	Ri

	Tag	Name
Gepr.	22.8.78	Wm.

ROHDE & SCHWARZ
MÜNCHEN

Interpolationsoszillator-50 kHz
Interpolation oscillator 50 kHz

Z

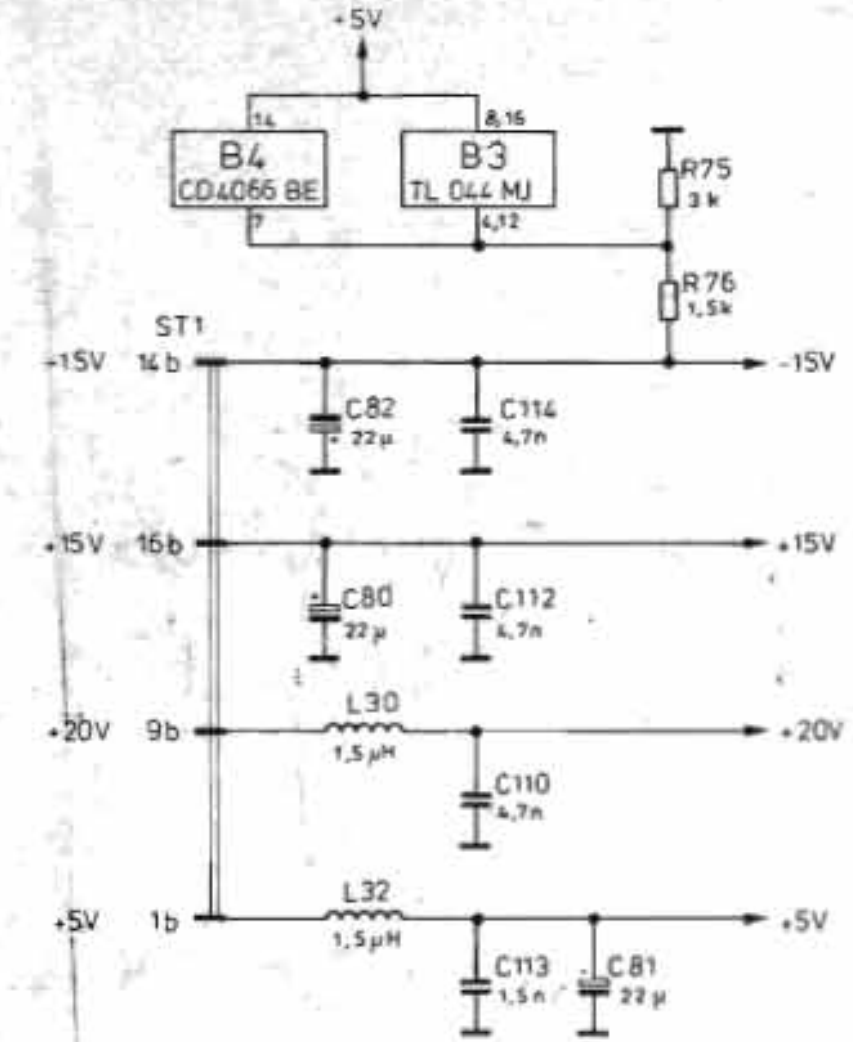
302.6415

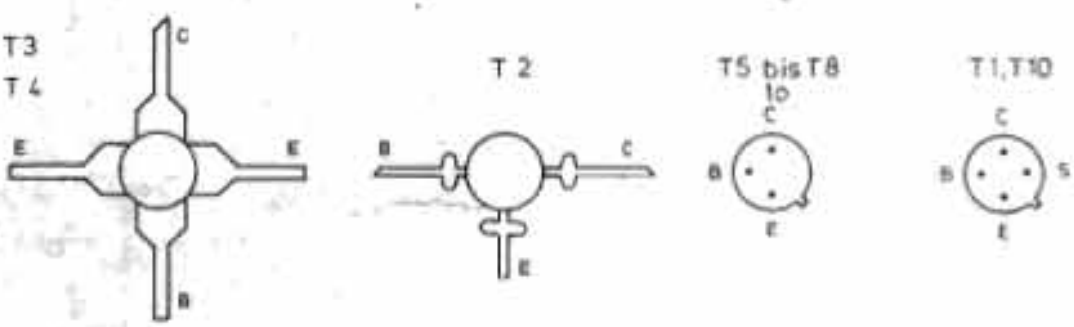
3

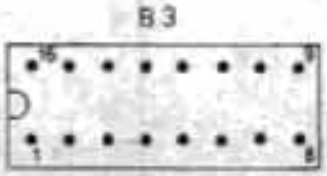
SMS

302.6015 V

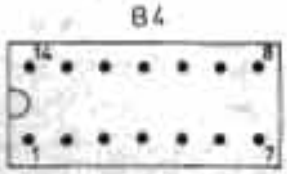
302.6082



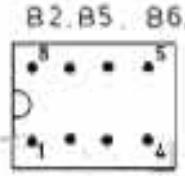




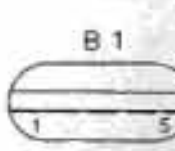
Draufsicht
Top view



Draufsicht
Top view



Draufsicht
Top view



Draufsicht
Top view

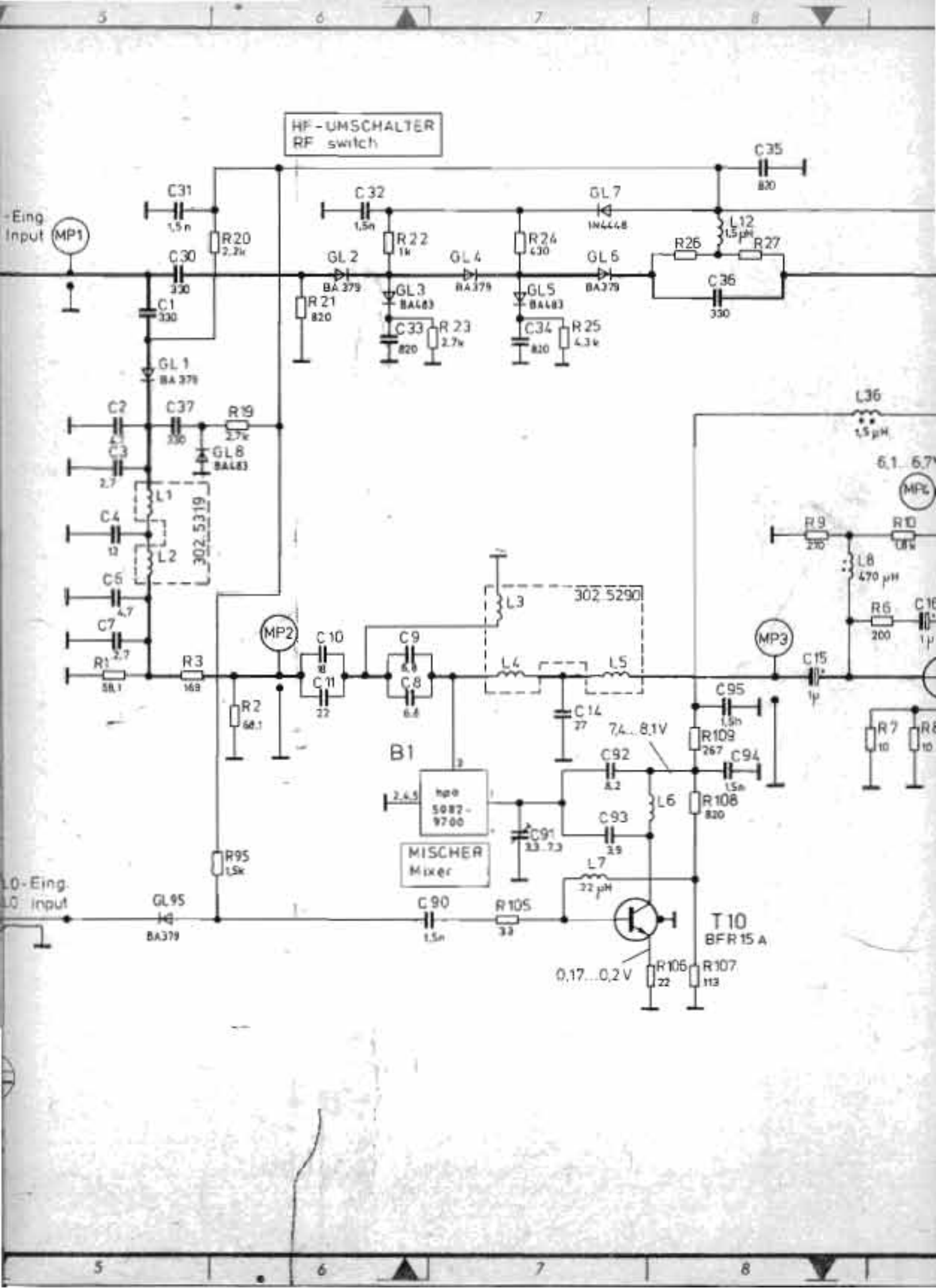
HF
RF
ST 1
19a,b

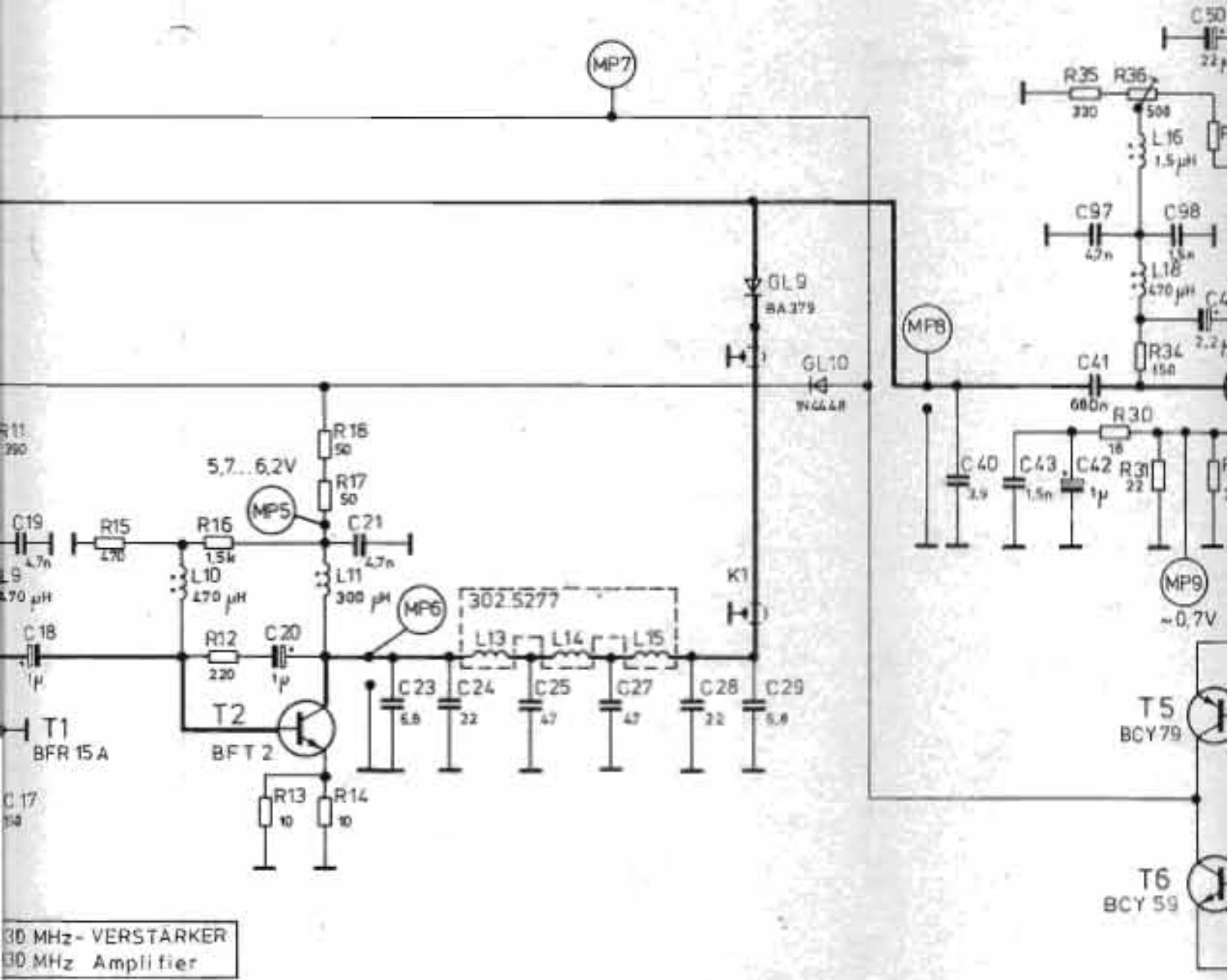
BU12

ROHDE & SCHWARZ · MÜNCHEN

	Name	Datum	Änd.-Mitteilg. Nr.	Änd. (Ind.)
gezeichnet	Gn	09.79		
			A 25932	04.80 SY
			B 26469	12.80 Sy
			C 29391	12.82 Ib
			D 29853	05.83 co
			E 30593	10.83 co
geprüft				
freigegeben				

Änd. (Ind.)	Änd.-Mitteilg. Nr.	Datum	Name
F	31273	04.84	CO

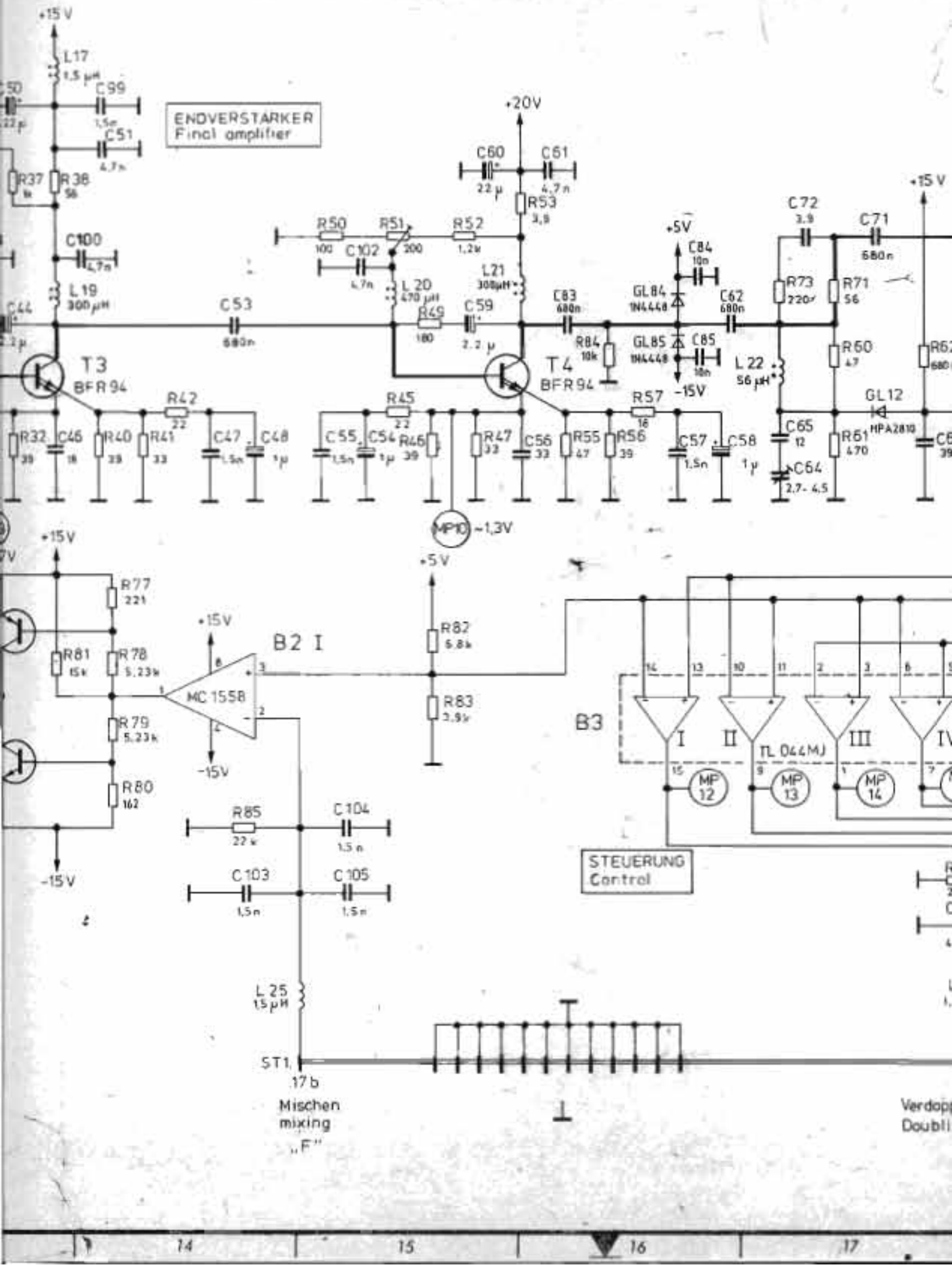

HF-UMSCHALTER
RF switch
-Eing.
Input
MP1
C31
1,5 n
R20
2,2k
C30
330
C1
330
C32
1,5n
R22
1k
R24
430
GL 2
BA 379
GL 4
BA379
GL 6
BA379
GL 7
1N4448
C35
820
L12
1,5 µH
R26
R27
C36
330
GL 3
BA483
GL5
BA483
R21
820
C33
820
R23
2,7k
C34
820
R25
4,3k
GL 1
BA 379
C2
C3
2,7
C37
330
R19
2,7k
GL8
BA483
L1
L2
302.5319
C4
12
C5
4,7
C7
2,7
R1
58,1
R3
169
R2
68,1
MP2
C10
18
C11
22
C9
6,8
C8
6,8
L3
302.5290
L4
L5
C14
27
L36
1,5 µH
6,1...6,7
MP4
R9
330
R10
L8
470 µH
R6
200
C16
1µ
MP3
C15
1µ
C95
1,5n
7,4...8,1V
R109
267
C92
8,2
C94
1,5n
R108
820
L6
C93
3,9
B1
hpo
5082-
9700
C91
3,3...7,3
MISCHER
Mixer
R95
1,5k
L7
22 µH
C90
1,5n
R105
33
T10
BFR 15 A
0,17...0,2 V
R106
22
R107
113
R7
10
R8
10
LO-Eing.
LO Input
GL95
BA379

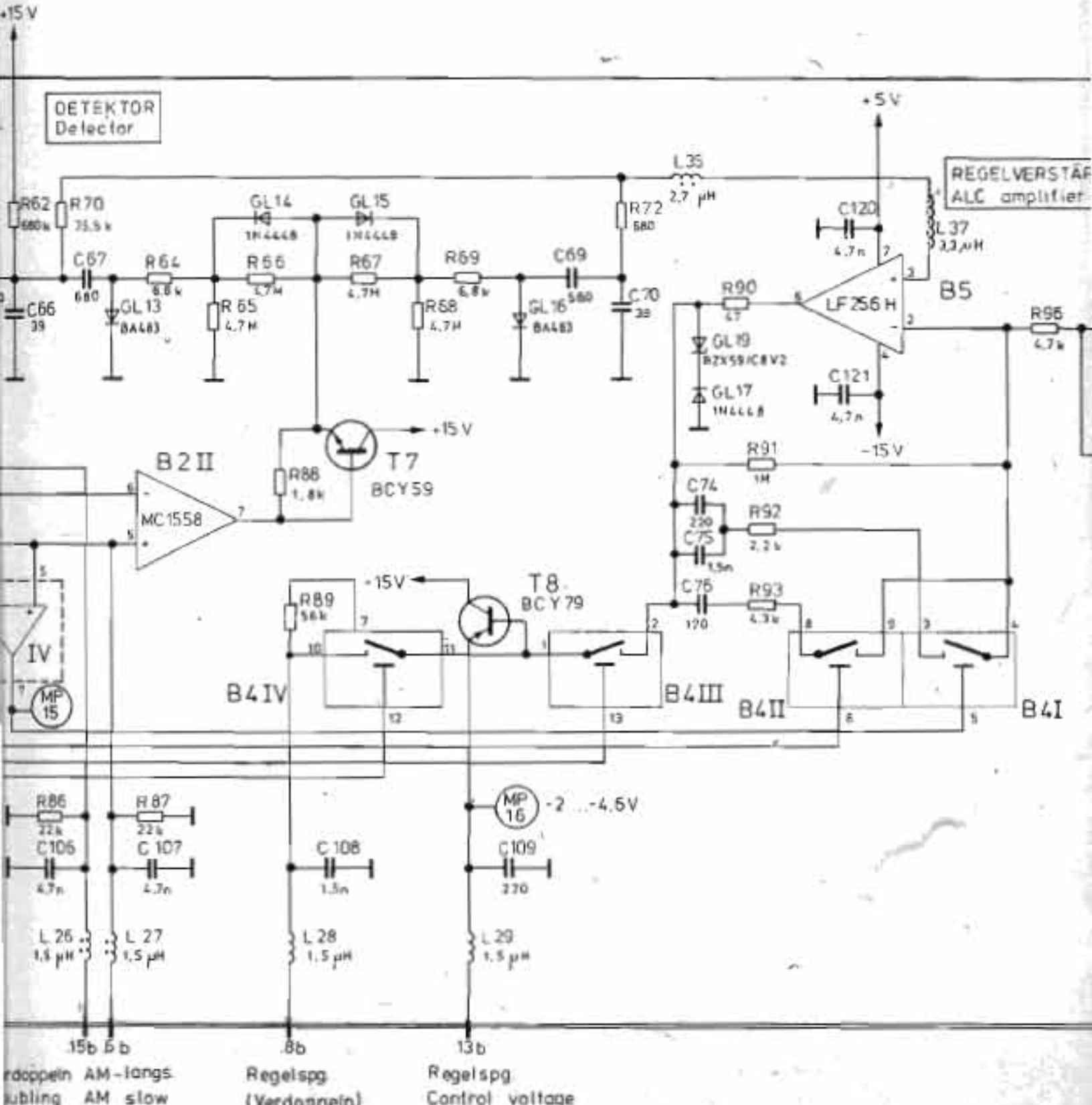


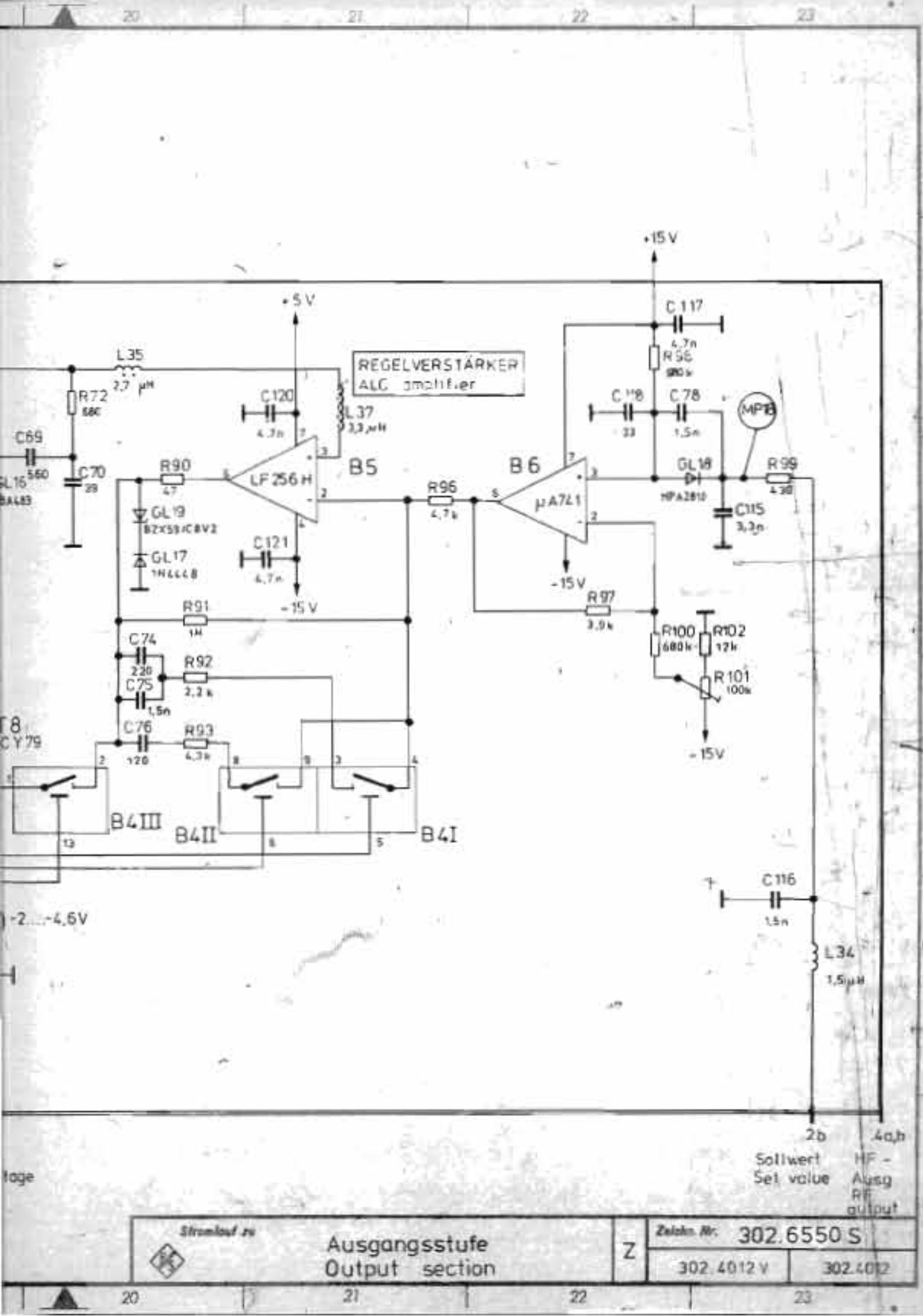
30 MHz - VERSTÄRKER
30 MHz Amplifier

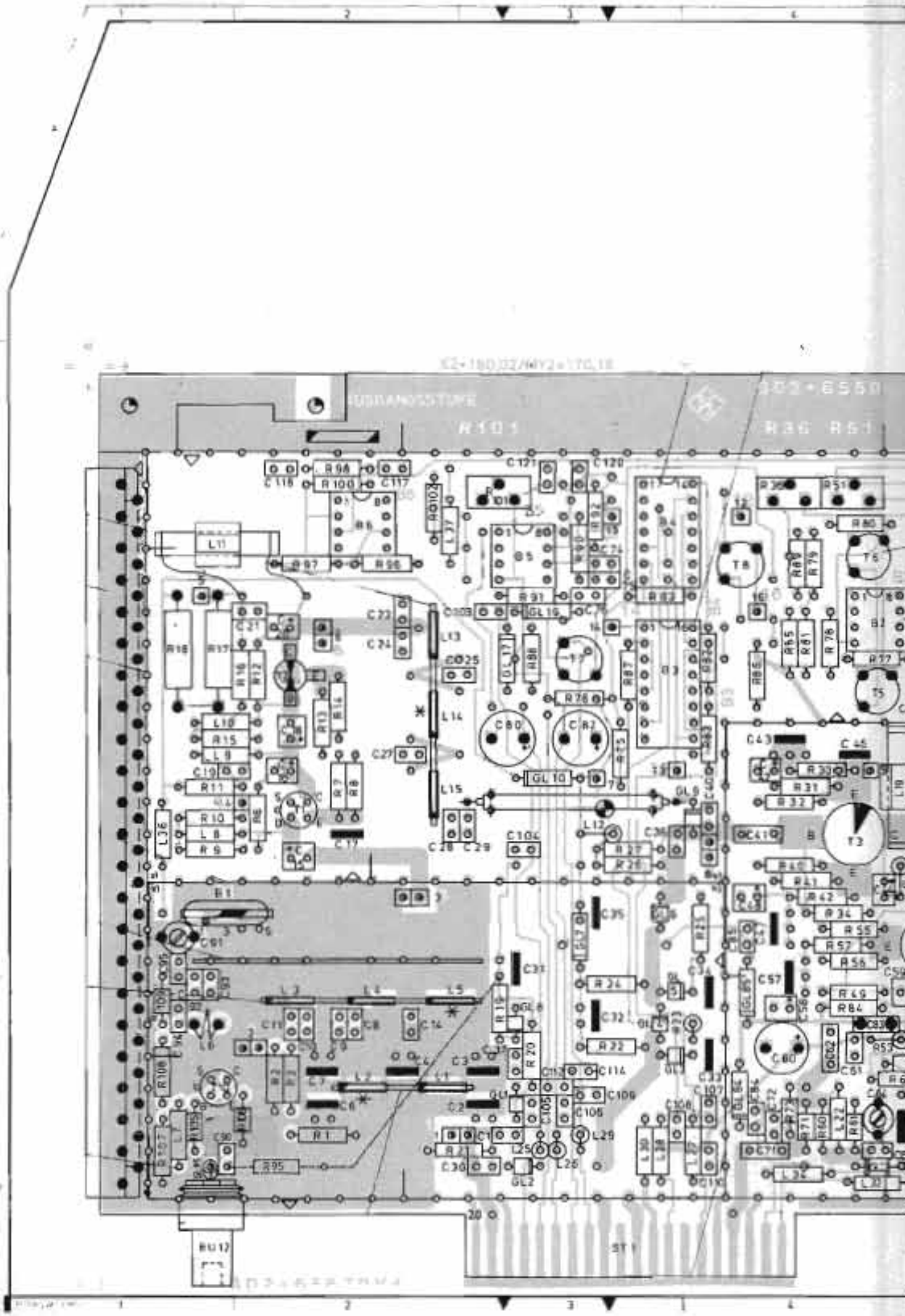
Spannung an den Meßpunkten [V-]
Voltage at test points

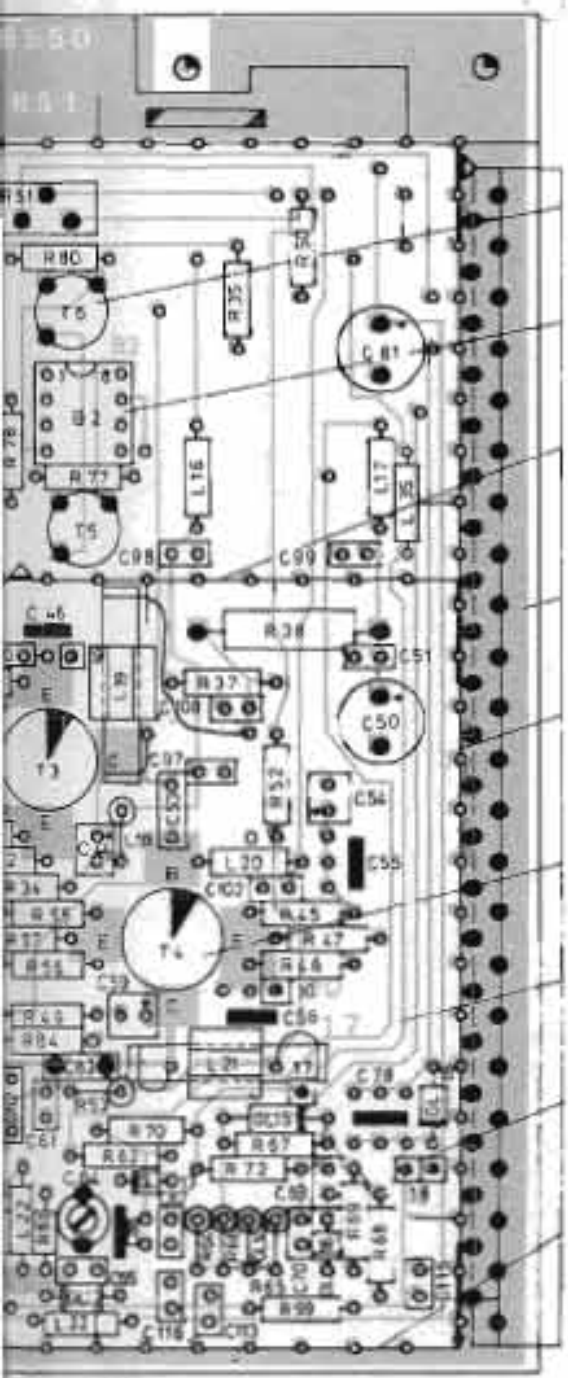
f [MHz]	MP 7	MP 12	MP 13	MP 14	MP 15
0,4 ... 4,9999	+13,5	- 9	+ 4	- 9	+ 4
5 ... 129,9999	+13,5	- 9	+ 4	+ 4	- 9
130 520	-14,5	- 9	+ 4	+ 4	- 9
520,0001 ... 1040	-14,5	+ 4	- 9	+ 4	- 9


ENDVERSTÄRKER
Final amplifier
+15 V
+20V
+5V
-15V
-1,3V
T3
BFR 94
T4
BFR 94
MC 1558
B2 I
B3
TL 044MJ
STEUERUNG
Control
MP10
MP 12
MP 13
MP 14
ST1
17b
Mischen
mixing
„F"


+15 V
DETEKTOR
Detector
+5 V
L35
2,7 µH
REGELVERSTÄR
ALC amplifier
R62
R70
GL14
GL15
R72
C120
L37
C67
R64
R66
R67
R69
C69
C66
GL13
R65
R68
GL16
C70
R90
LF 256 H
B5
GL19
GL17
C121
R96
-15 V
R91
B2 II
MC1558
R88
T7
BCY59
C74
R92
C75
T8
BCY79
R89
C76
R93
IV
MP 15
B4 IV
B4 III
B4 II
B4 I
R86
R87
MP 16
-2 ...-4,6V
C106
C 107
C 108
C109
L 26
L 27
L 28
L 29
15b
6b
8b
13b
Regelspg
(Verdoppeln)
Control voltage
(doubling)
Regelspg
Control voltage
Stromlauf zu
Ausgangsstufe
Output sectio


+15 V
+5 V
L35
2,7 µH
R72
680
C69
560
C70
28
REGELVERSTÄRKER
ALC amplifier
C120
4,7n
L37
3,3 µH
R90
47
B5
LF 256 H
GL19
BZX55/C8V2
GL17
1N4448
C121
4,7n
-15 V
R91
1M
C74
220
C75
1,5n
R92
2,2 k
C76
120
R93
4,3k
B4III
B4II
B4I
B6
µA741
R96
4,7k
C117
4,7n
R98
C118
33
C78
1,5n
MP3
GL18
HPA2810
R99
4,3k
C115
3,3n
-15 V
R97
3,9k
R100
680k
R102
12k
R101
100k
-15 V
C116
1,5n
L34
1,5µH
-2...-4,6V
2b
Sollwert
Set value
4a,b
HF -
Ausg
RF
output
Stromlauf zu
Ausgangsstufe
Output section
Z
Zeichn. Nr. 302.6550 S
302.4012 V
302.4012

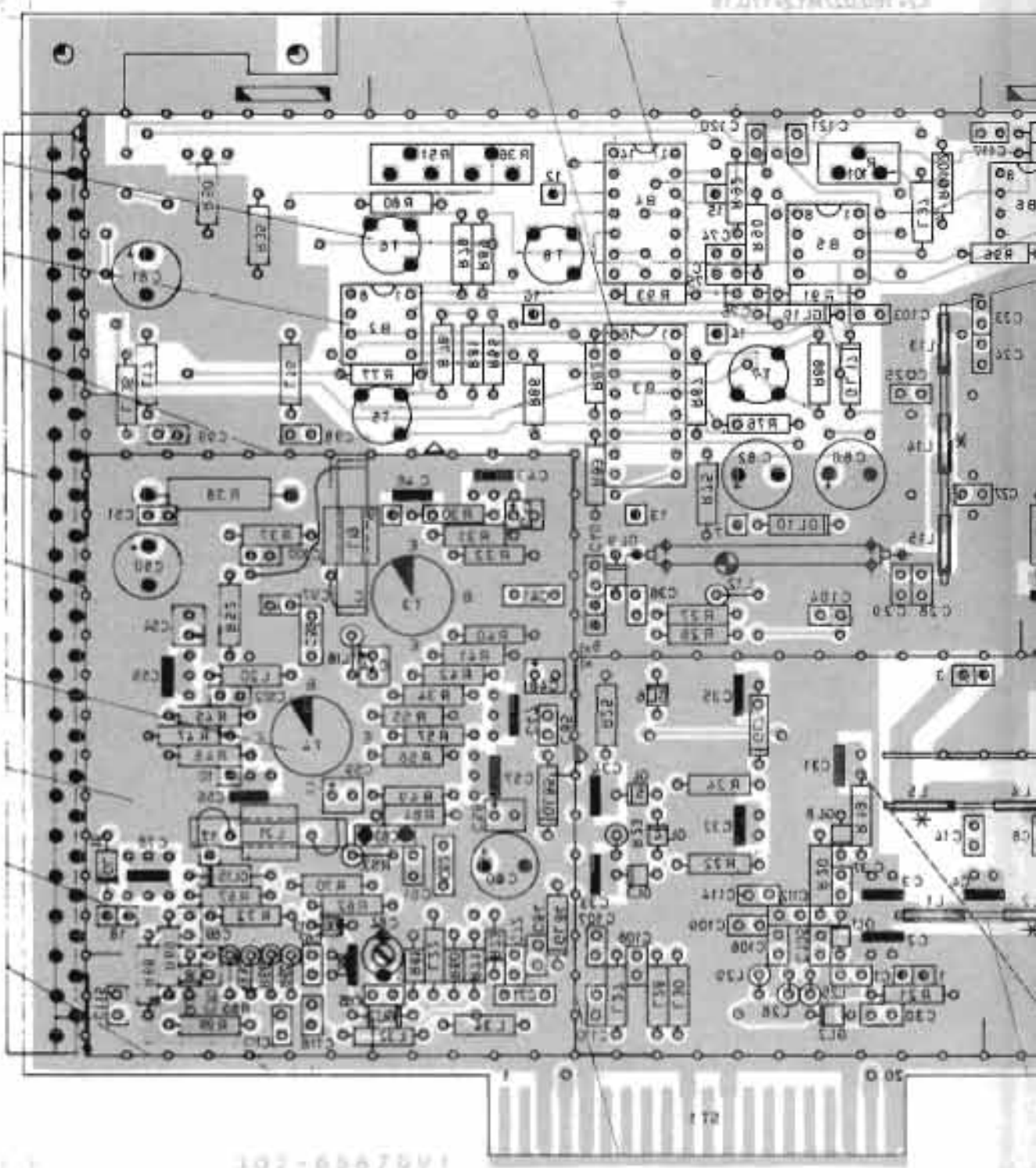


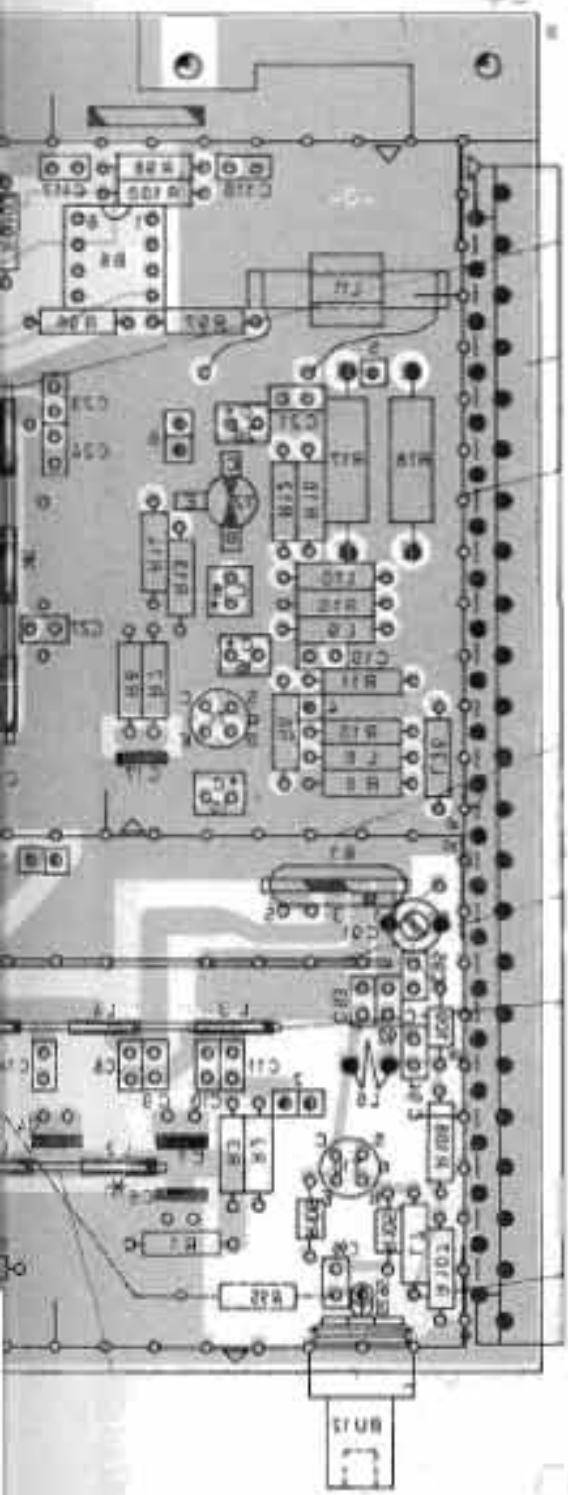


Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

1 2 3 cm

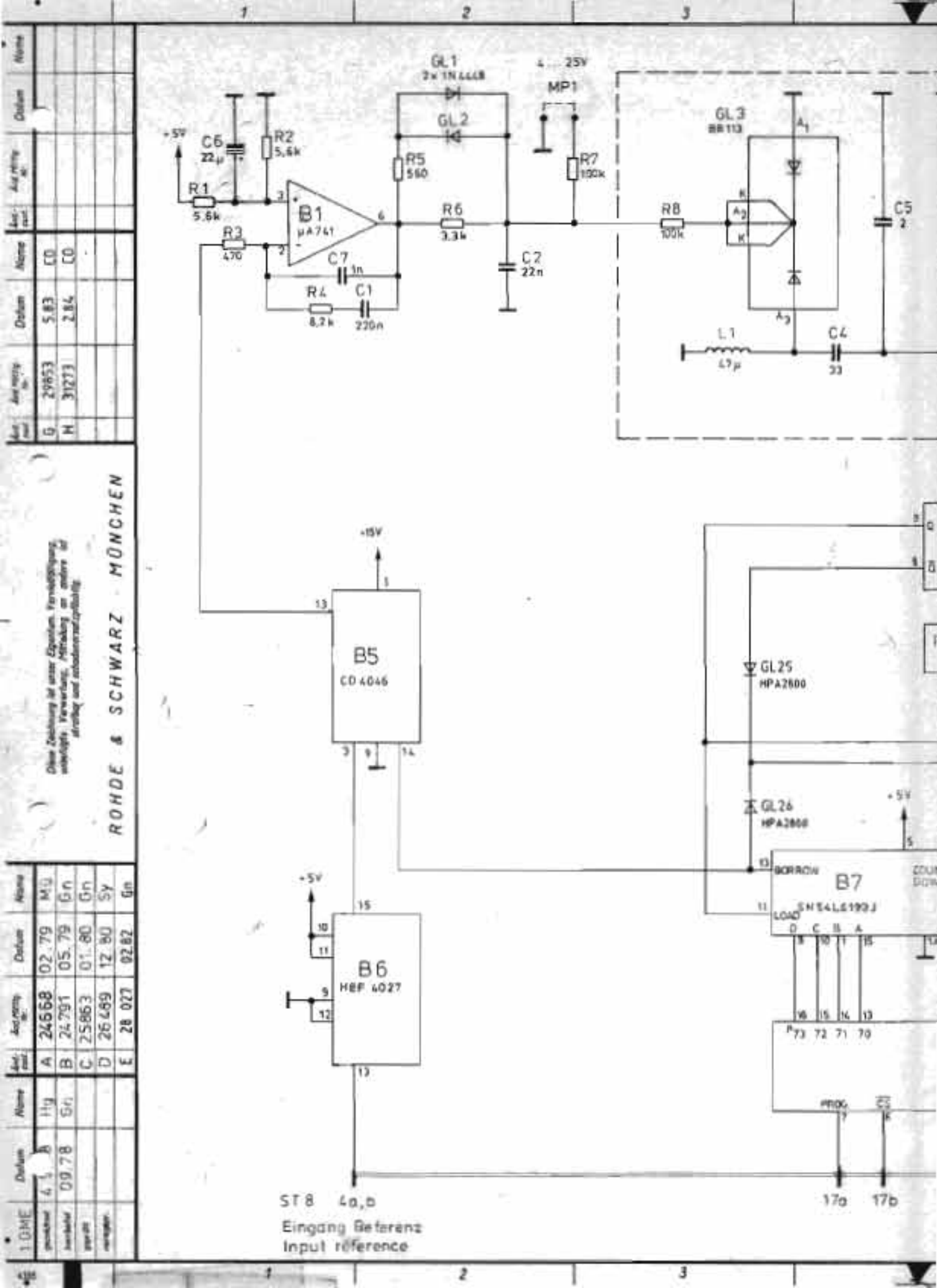
F 29391 H 29453	10 82 fb 4.83 ib		2 1
SGM 10 82 fb		Ausgangsstufe Output stage	Z
ROHDE & SCHWARZ		302.6550	3
		ersetzt: 302.6012V	ersetzt durch: 302.6017

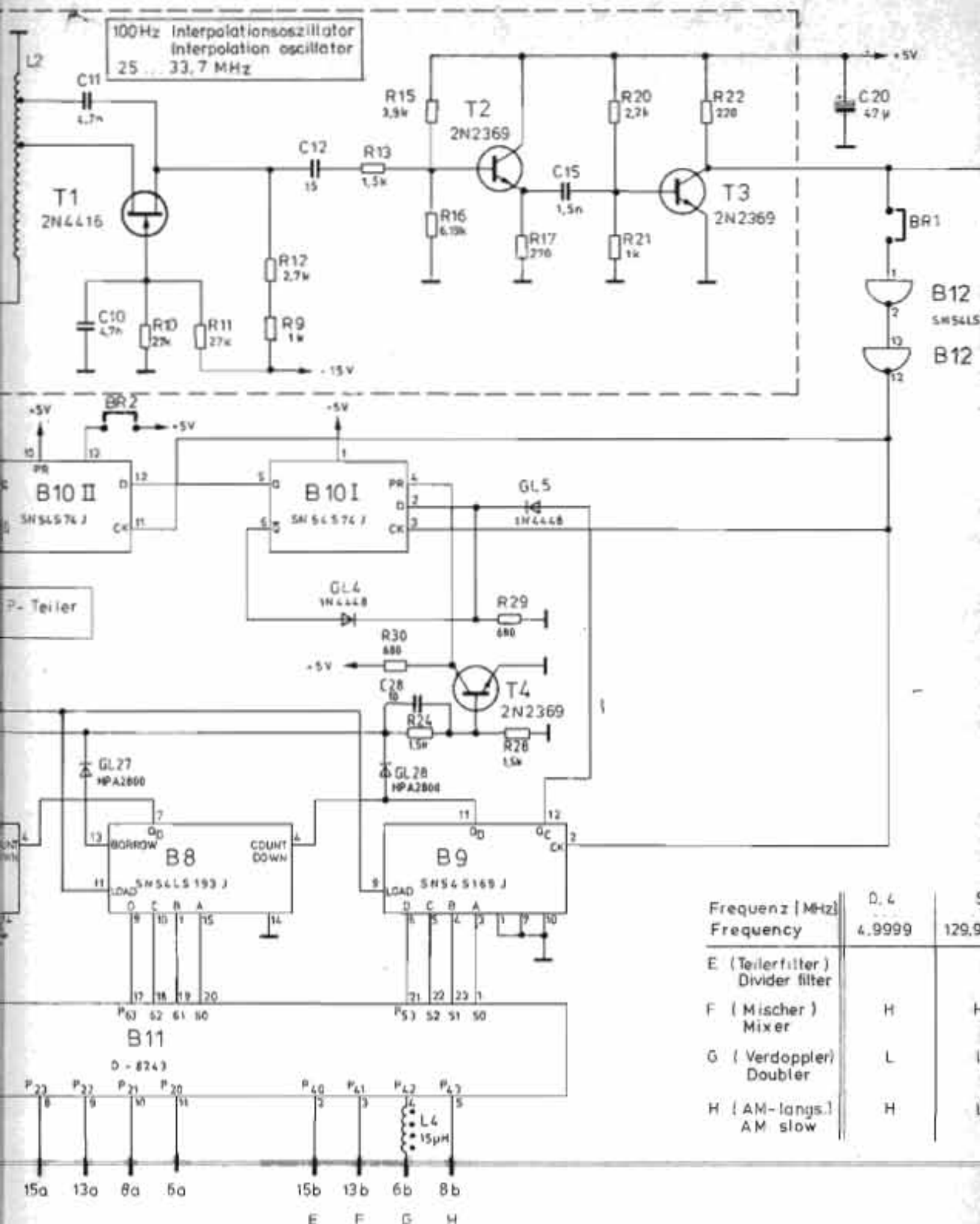




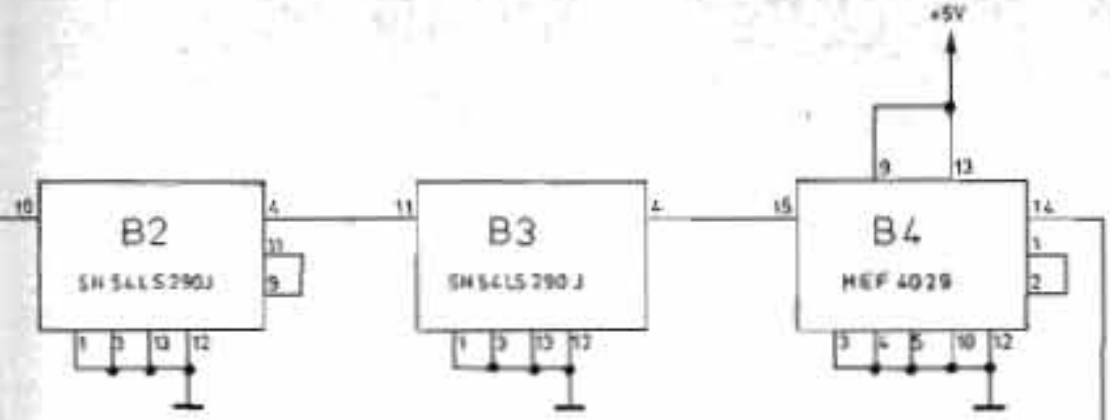
Ansicht und Leitungsführung Lötseite
View of tracks on solder side

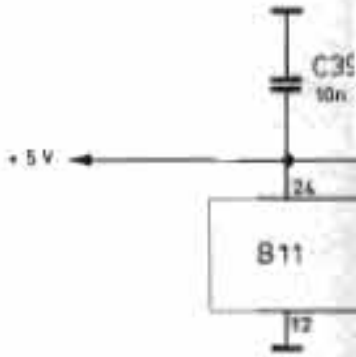
P 2934-91 10.82 lb H 2985-3 4.83 lb			
TGM 10.82 lb		Ausgangsstufe Output stage	2
ROHDE & SCHWARZ SMS		302.6550	3
		Typ 302.4012V ⟶ 302.4012	


GL1
2x 1N4448
4 ... 25V
MP1
GL2
GL3
BB113
+5V
C6
22µ
R2
5,6k
R1
5,6k
R5
560
R7
100k
B1
µA741
R6
3,3k
R8
100k
C5
2
R3
470
C7
1n
C2
22n
R4
8,2k
C1
220n
L1
47µ
C4
33
+15V
B5
CD 4046
GL25
HPA2800
GL26
HPA2800
+5V
B7
SN54LS193J
BORROW
LOAD
B6
HEF 4027
ST 8 4a,b
Eingang Referenz
Input référence
17a
17b
ROHDE & SCHWARZ MÜNCHEN



Frequenz [MHz] Frequency	D, 4 ... 4.9999	5 ... 129.9
E (Teilerfilter) Divider filter		
F (Mischer) Mixer	H	H
G (Verdoppler) Doubler	L	L
H (AM-langs.) AM slow	H	L





Draufsicht
Top view

B11

130	190	260	380	520.0001	780
189.9999	259.9999	379.9999	520	789.9998	1040
L	H				
L	L	L	L	L	L
L	L	L	L	H	H
L	L	L	L	L	L

T1

11a,b

Ausgang 100 ..135 kHz
Output

Streulauf zu

ST 8

+28V — 7a,b +28V

B1 (7 / 4)

C21 47µ

C25 10n

C39 10n

C32,C33,C34, C35,C36,C37 10n

C30,C31, C38,C40 10n

L3 1.5µH

+5V — 1a,b +5V

B11 (24 / 12)

B4, B5, B6, B7, B8, B9 (16 / 8)

B2, B3, B10, B12 (14 / 7)

C22 47µ

C26 10n

-15V — 14a,b -15V

C23 47µ

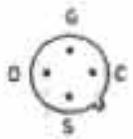
C27 10n

Draufsicht Top view — B11

Draufsicht Top view — B4 B9

Draufsicht Top view — B2, B3, B10, B12

Draufsicht Top view — B1



T1

T2, T3, T4

Stromlauf gilt für VAR 02
Circuit diagramm is valid for model 02

11a,b

100 ... 135 kHz

Stromlauf zu

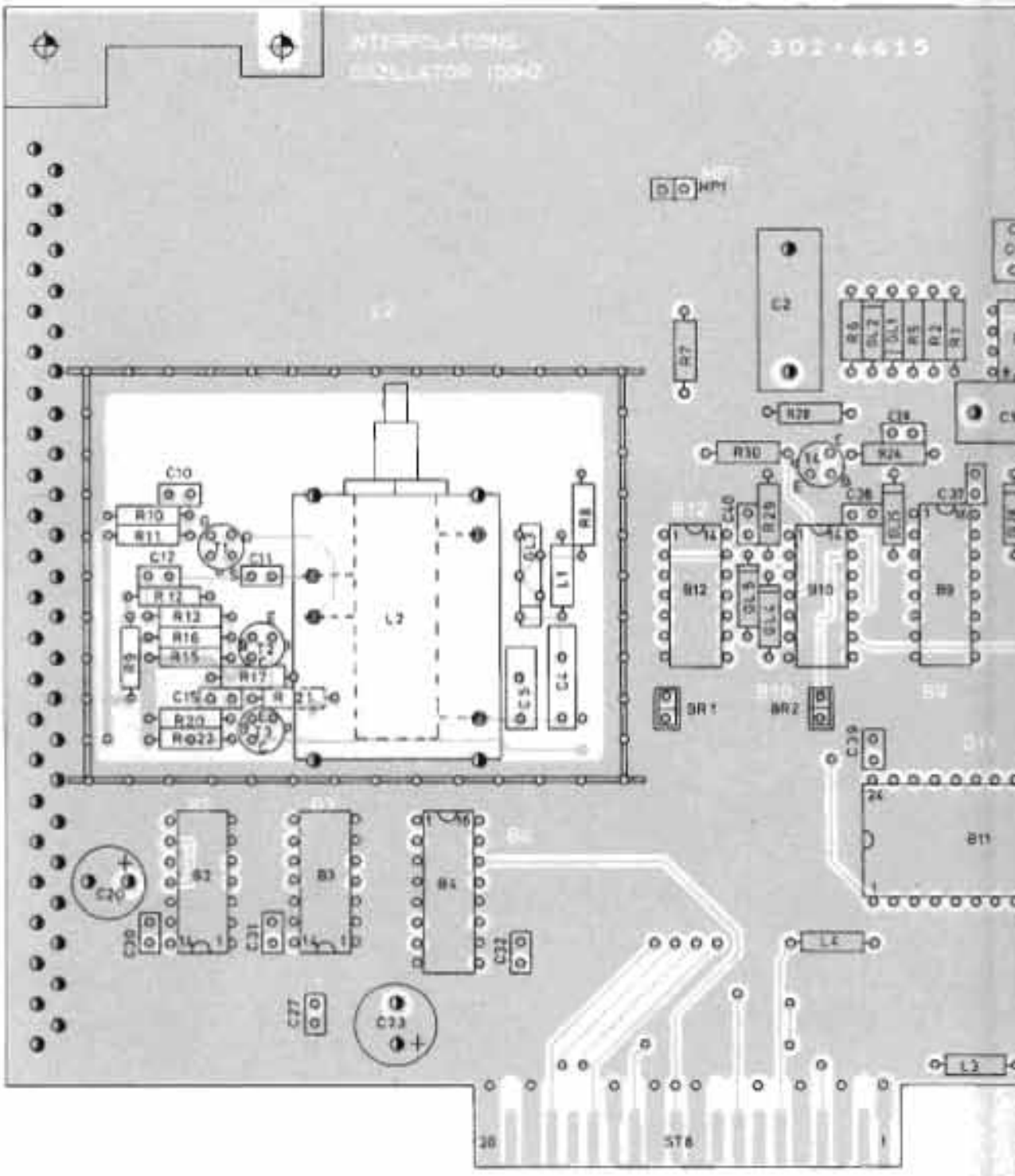
Interpolationsoszillator-100 Hz
Interpolation oscillator -100 Hz

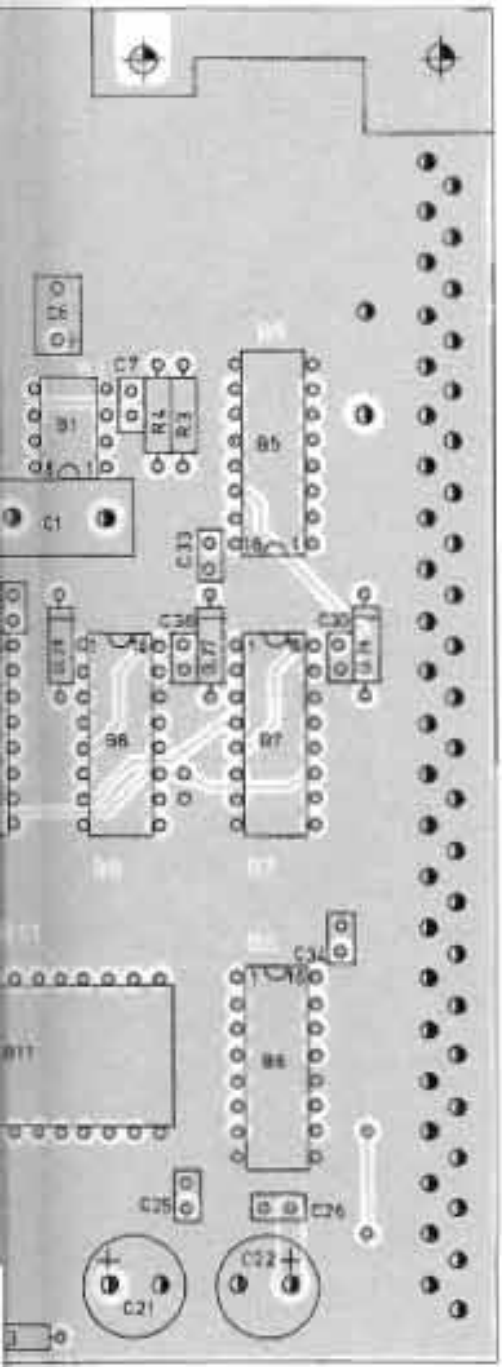
Z

Zeichn. Nr. 302.6615 S

302.4012V | 302.4012

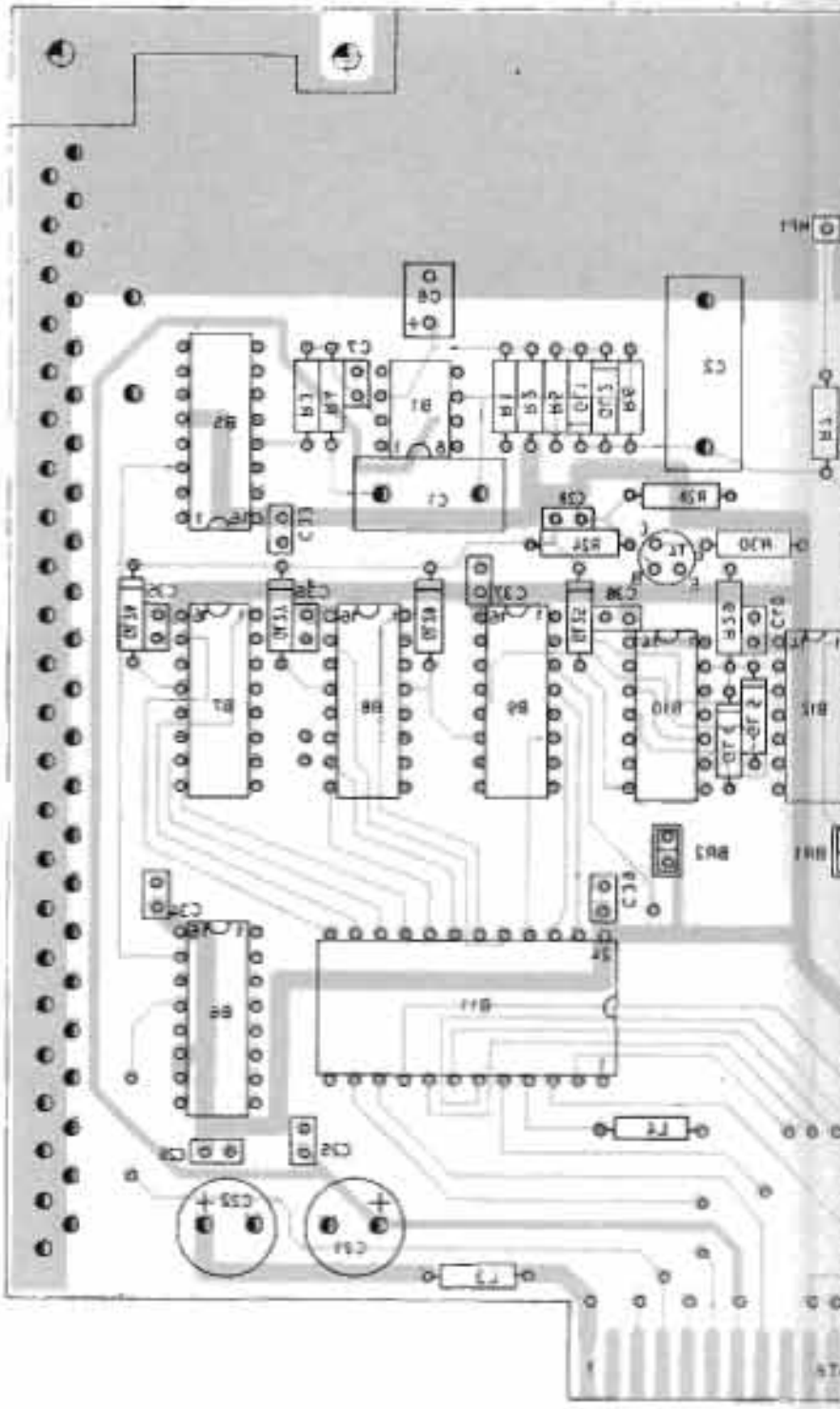
Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



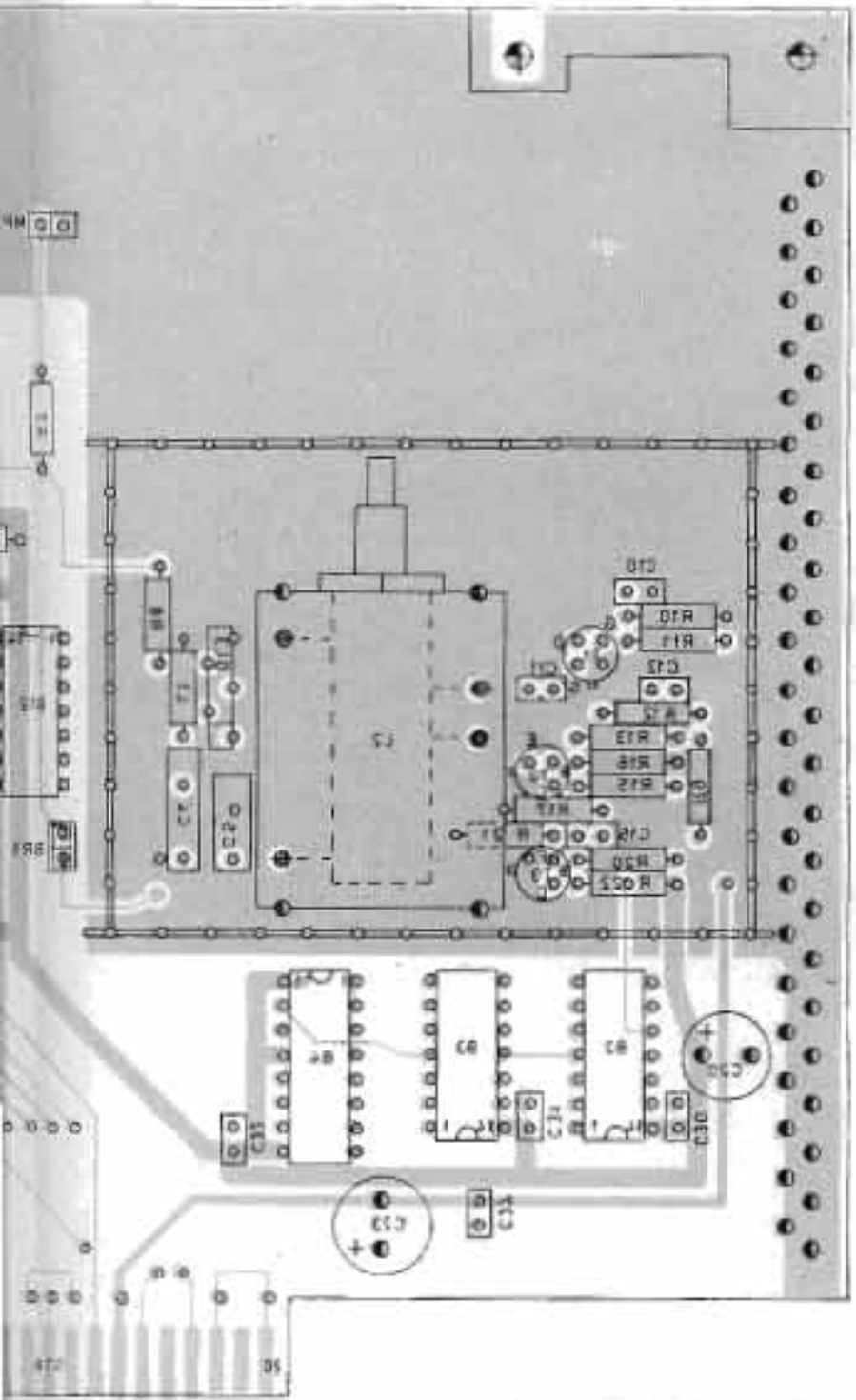


A	24542	10.78	Gn				
B	24791	02.79	Gn				
C	25867	01.80	Gn				
D	26 446	12.80	Sy				
E	28 027	02.82	Gn	SOME	Tag	Name	Benennung: Interpolationsoszillator - 100 Hz / interpolation oscillator 100 Hz — Z
F	29953	84.85	b	Bearb.	4.9.78	Wm	
				Zeichn.			
				Datum			
				RHODE & SCHWARZ			Zeichn.-Nr. 302.6615 — Blatt-Nr. 2
				Zu Gerät	SMS		Mfg.-Nr. 402.4812 V — Benennung: 402.4812

Ansicht und Leitungsf
View of tracks on sold



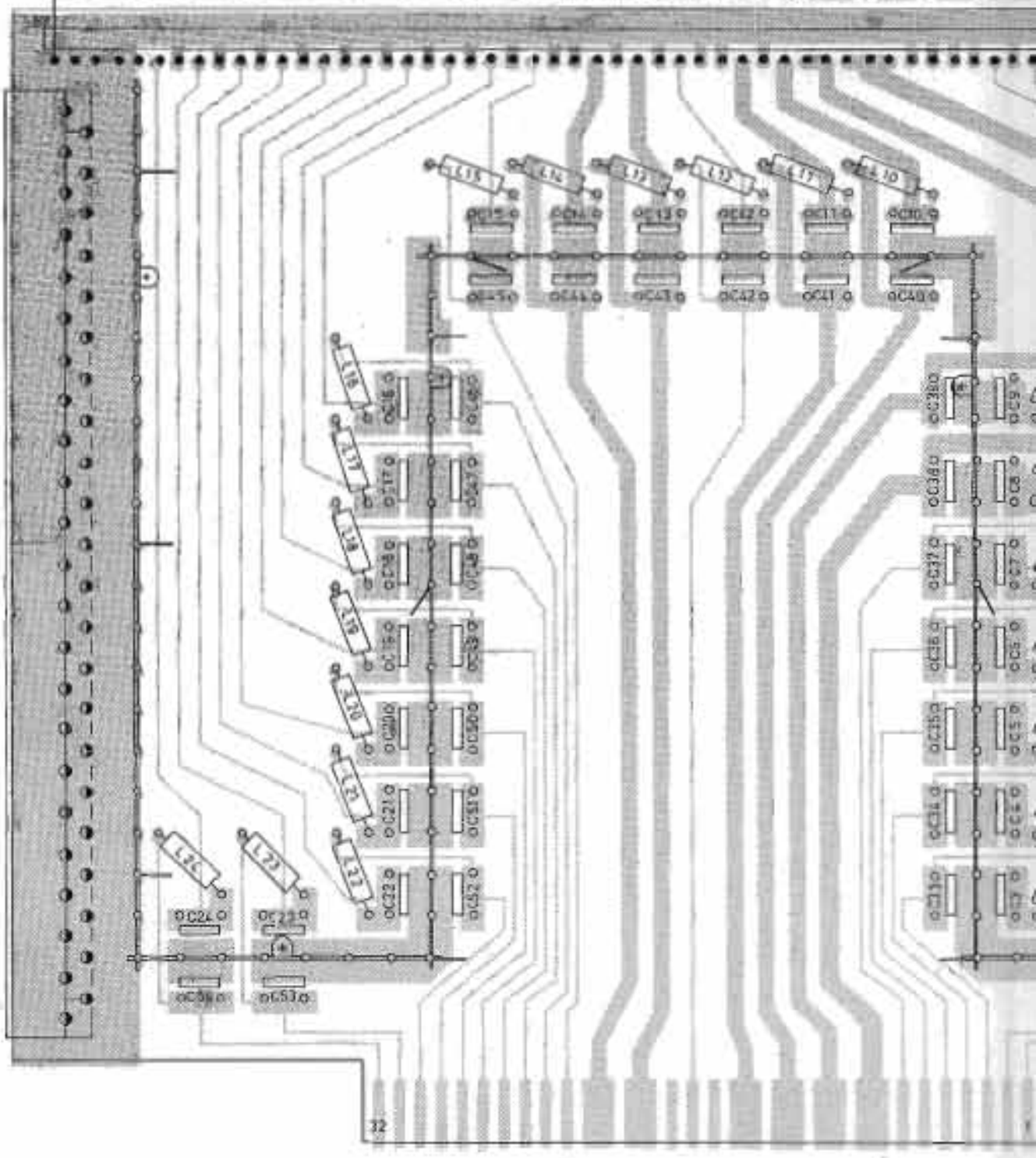
ngsführung Lötseite
solder side

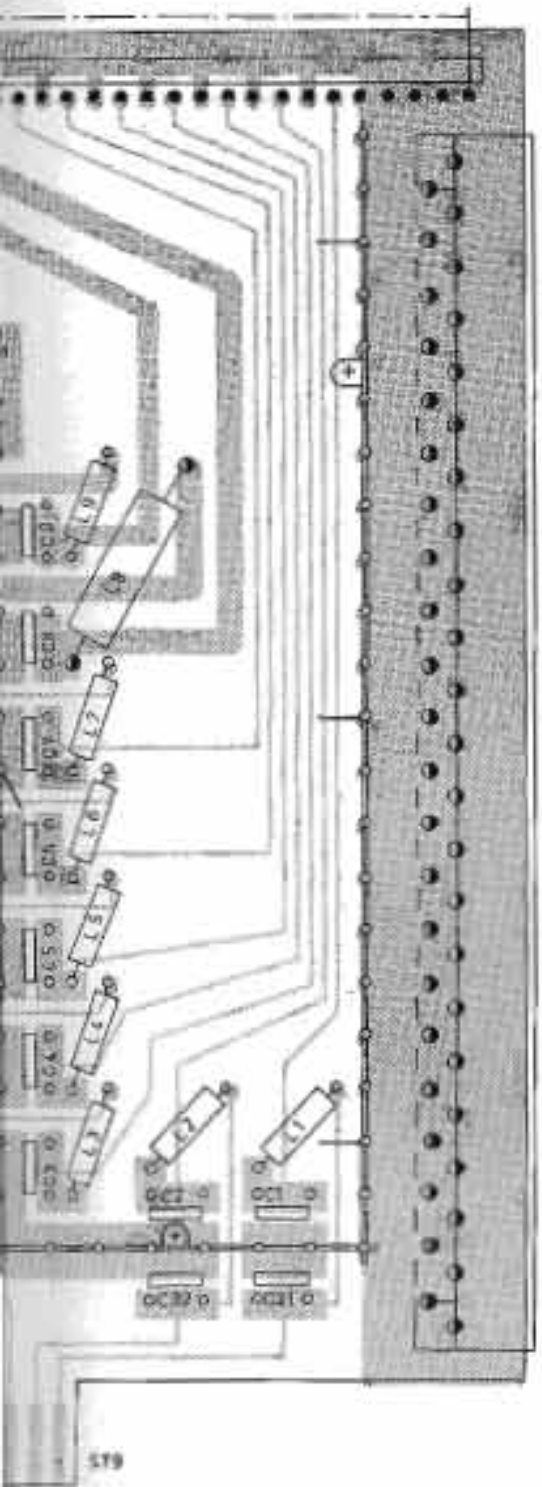


1 2 3 cm

A	21545	10 78	Gn		Maßstab 2 : 1	
B	21791	02 79	Gn			
C	25853	01 80	Gn			
D	28495	12 80	Sy			
E	28027	02 82	Gn			
H	29853	04 83	H		Interpolationsoszillator - 100 Hz Interpolation oszillator 100 Hz	Z
				SMS	302.6615	

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

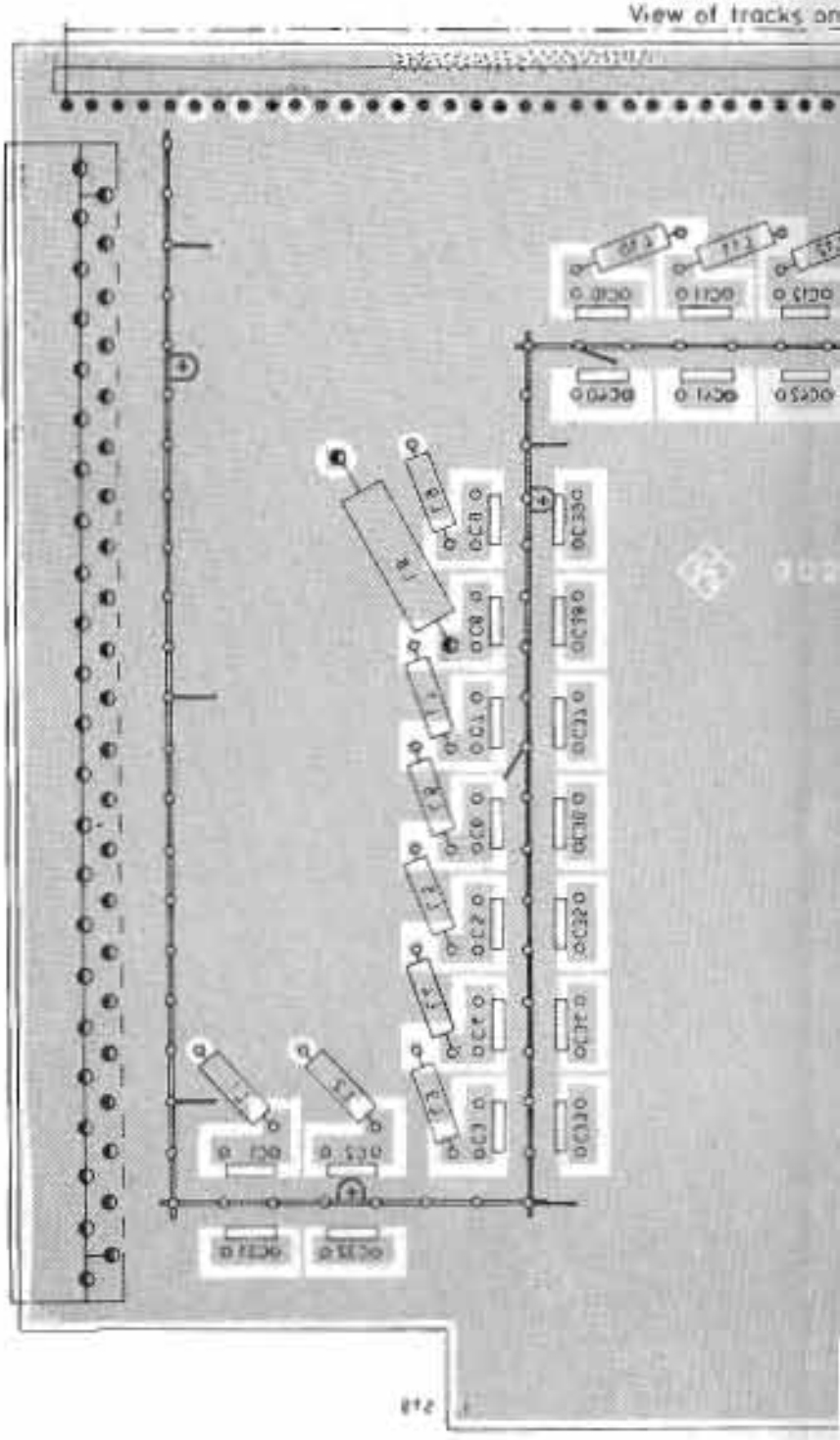




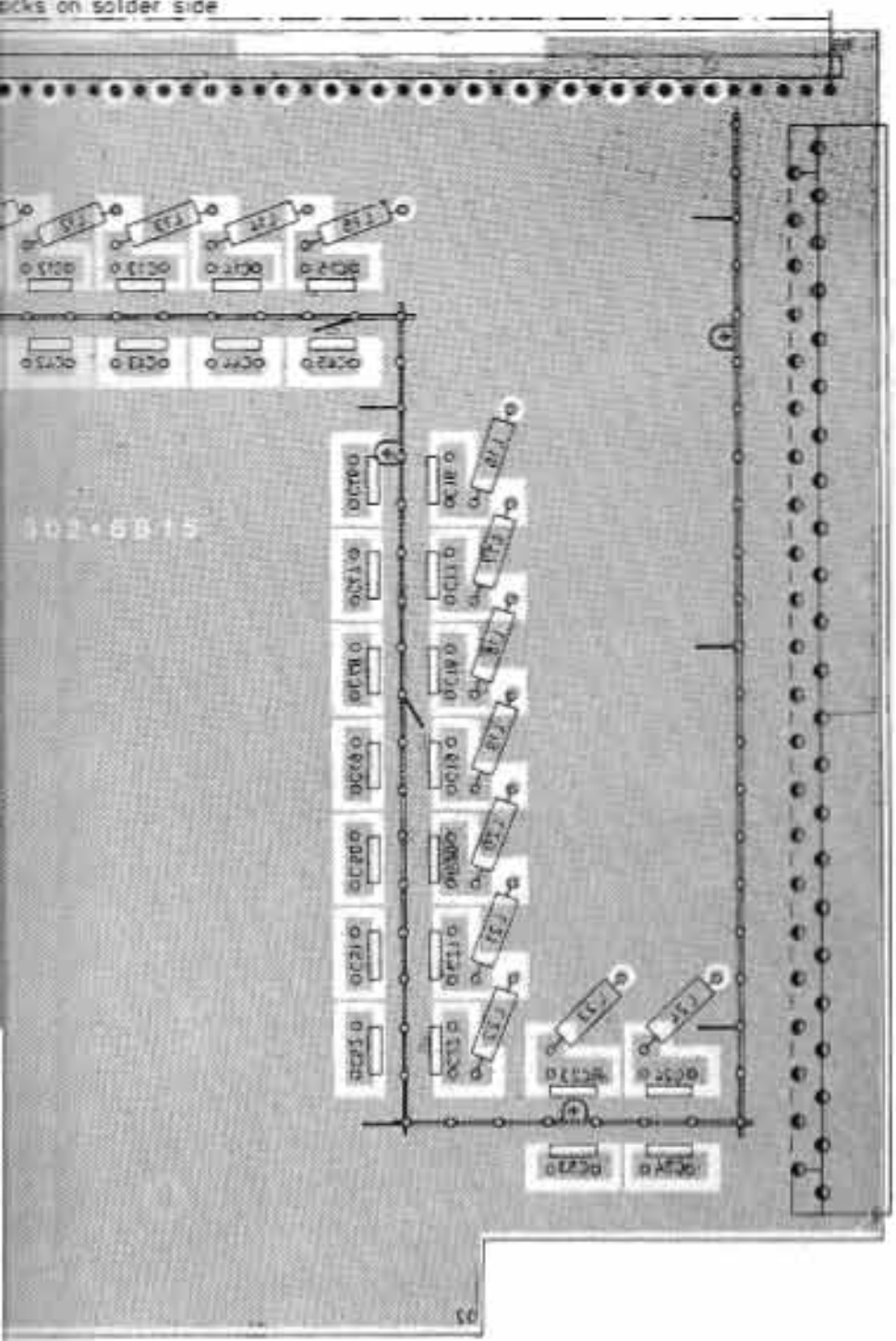
0 1 2 3
ZENTIMETER

B	24545	10.78	On			Maßstab 2 : 1	
						Maßstab/Mod. Werkstoff	
						Benennung	
						Filter	Z
						ROHDE & SCHWARZ MÜNCHEN	302 6815
Änd. Zust.	Änderungs-Mitteilung	Tag	Name			Ers. für: SMS	Ers. durch: 302 4012 V

Ansicht und Leit
View of tracks on



nd Leitungsführung Lötseite
cks on solder side



B	24945	10.78	Gn
C	26791	04.79	Sn
E	29863	01.80	Gn

ohne	Tag	Name
Entw.	11.7.78	Wm
Gepr.		
Norm.		

ROHDE & SCHWARZ MÜNCHEN

Bezeichnung: Filter

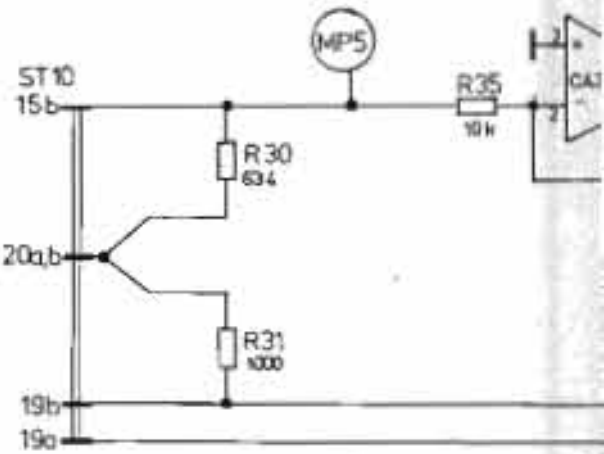
Z

302 6815

Ersatz für: 302 6812V Ersatz durch: 302 6812

NUR VAR 22
(zur Rückwand) Mod.-Eing. 3
(to rear panel) Mod. input 3

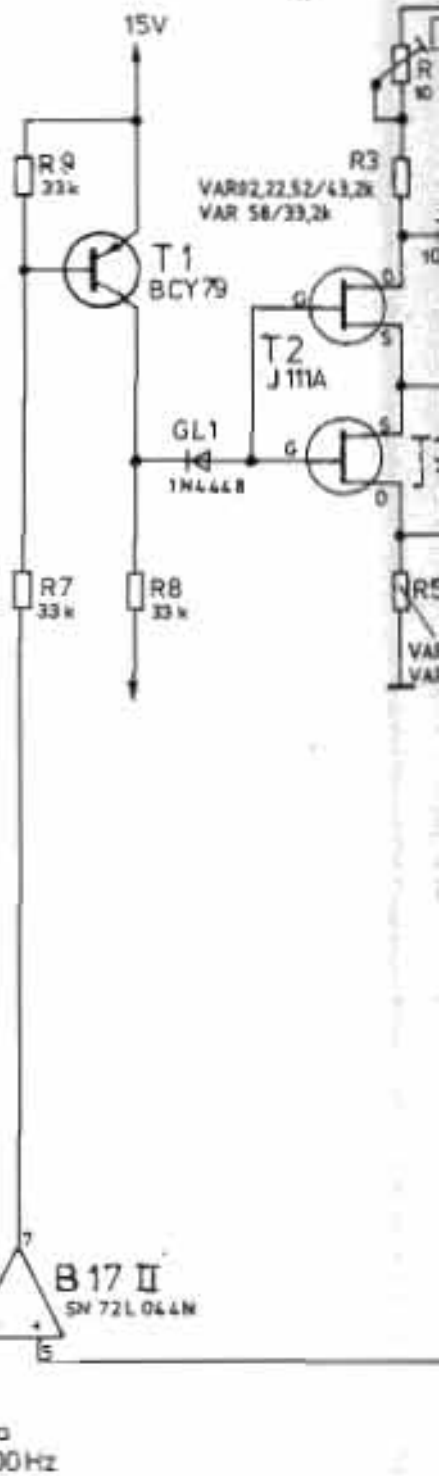
NUR VAR 22
(zur Frontplatte) Mod.-Eing. 1
(to front panel) Mod. input 1
VAR 22 { Mod.-Eing. 2 / Mod. input 2
[1] (zur Rückwand) Ausgang [1]
(to rear panel) output



Stellung der Betriebsartenschalter
Positions of mode switches

	IC Anschluß IC Pin	un-moduliert un-modulated	AM int.	AM ext. [1] Zweit-Modulation	FM int.	FM ext. [1] Zweit-Modulation
B3 I	13	L	L	H [1] H	L	H [1] H
B3 II	5	L	H	L [1] L	H	L [1] L
B3 III	6	L	H	L [1] L	H	L [1] L
B80 I	6	L	H	H	L	L
B80 II	12	H	L	L	H	H
B80 III	13	L	L	L	H	H
B80 IV	5	L	H	H	L	L
B14 I	13	H	L	L	H	H
B14 II	12	L	L	L	H	H
B14 III	5	L	H	H	L	L
B15 I	5	L				
B15 II	12	L				
B15 III	6	H				

[1] VAR 52



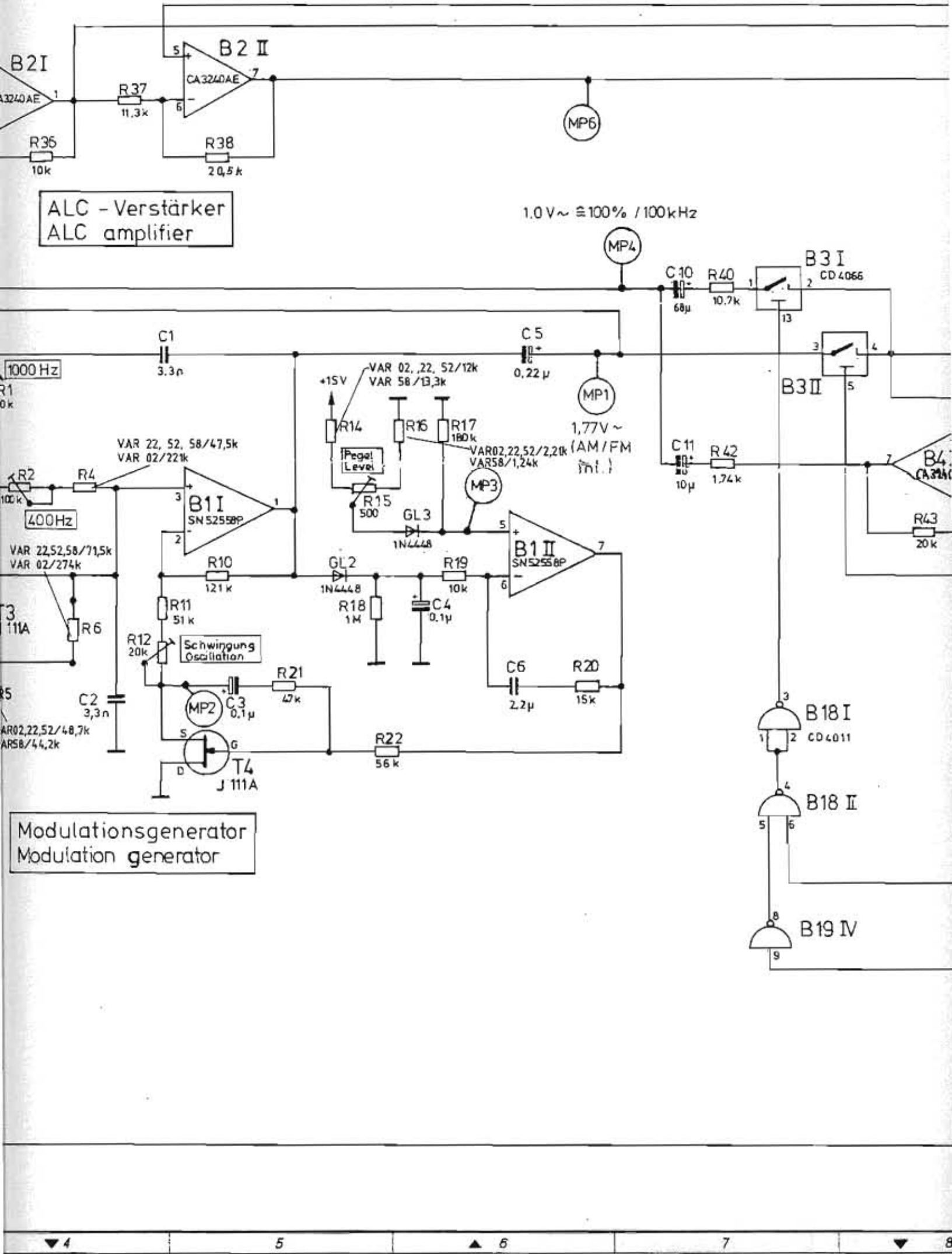
ROHDE & SCHWARZ · MÜNCHEN

Änd.	Änd.-Mitt.-Nr.	Datum	Name
A	24668	02.79	Mü
B	24 791	05.79	Gn
C	25 166	10.79	Gn
D	25932	04.80	Sy
E	26 489	12.80	Sy

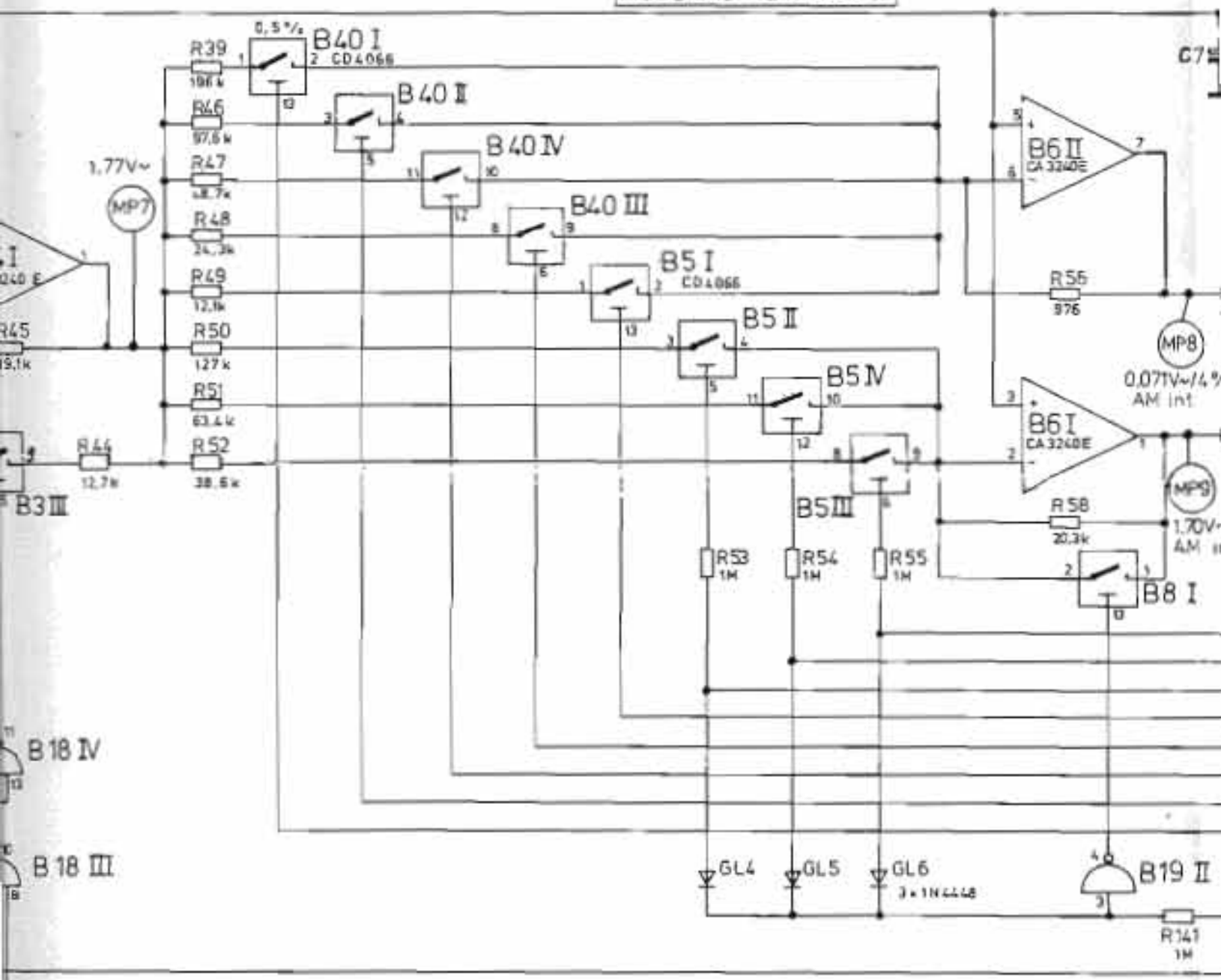
Änd.	Änd.-Mitt.-Nr.	Datum	Name
F	28027	11.81	Hs
G	28613	9.82	Sb
H	29853	5.83	co
J	30593	10.83	co
K	31273	7.84	CO

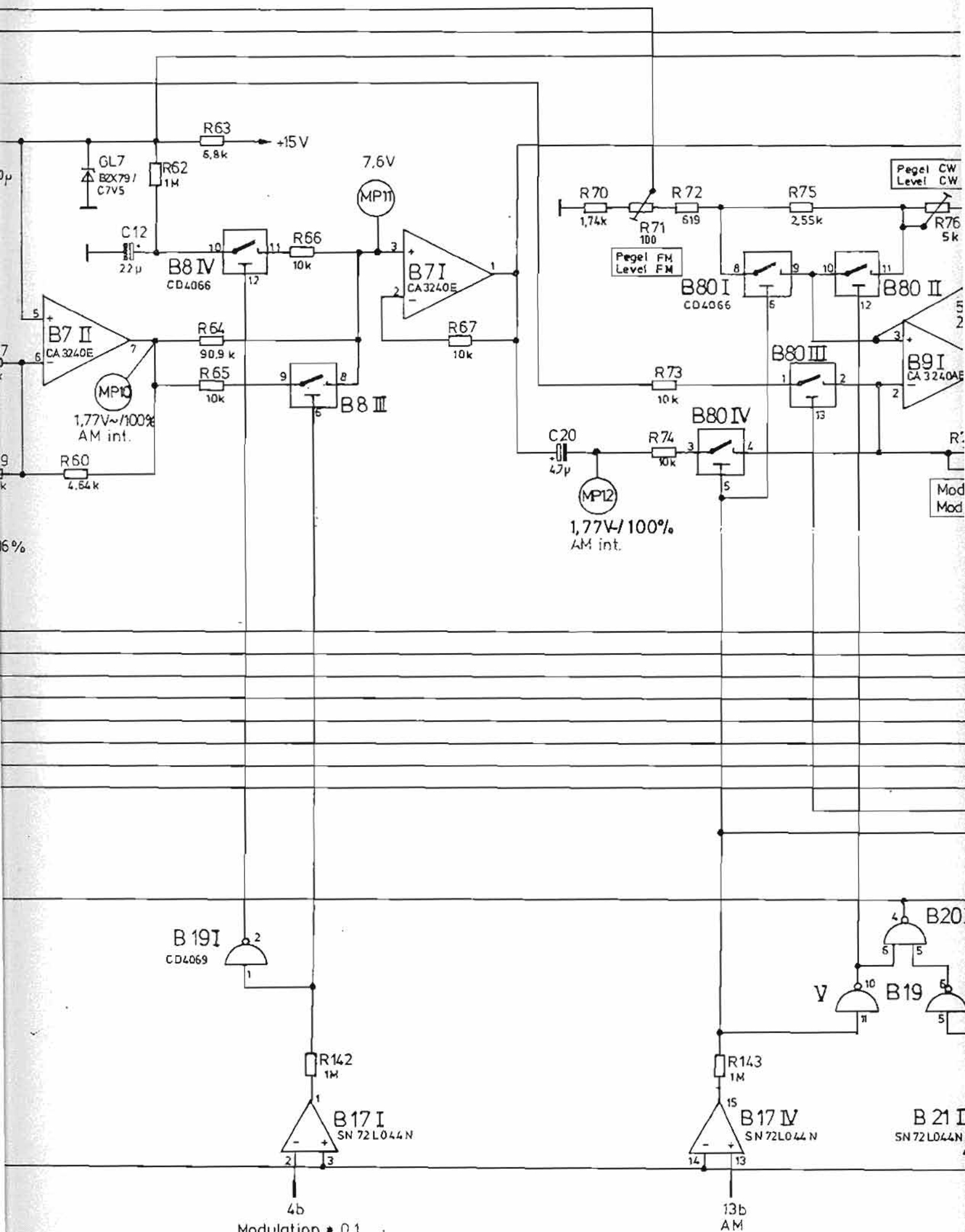
	Datum	Name
gezeichnet	1.79	Ci
konstruiert		
geprüft		
freigegeben		

4399


B2I
A3240AE
R36
10k
R37
11,3k
B2 II
CA3240AE
R38
20,5k
MP6
ALC - Verstärker
ALC amplifier
1.0 V~ ≙ 100% / 100kHz
MP4
C10
68µ
R40
10.7k
B3 I
CD4066
C1
3.3n
C5
0,22µ
1000 Hz
+15V
VAR 02, ,22, 52/12k
VAR 58/13,3k
MP1
1,77V ~
(AM/FM
ind.)
B3II
R14
R16
R17
180k
VAR02,22,52/2,21k
VAR58/1,24k
Pegel
Level
R15
500
MP3
GL3
1N4448
C11
10µ
R42
1,74k
VAR 22, 52, 58/47,5k
VAR 02/221k
R2
100k
R4
400Hz
B1 I
SN52558P
B1 II
SN52558P
R43
20k
VAR 22,52,58/71,5k
VAR 02/274k
R10
121k
GL2
1N4448
R19
10k
R11
51k
R18
1M
C4
0,1µ
R6
R12
20k
Schwingung
Oscillation
C6
2,2µ
R20
15k
R21
47k
C2
3,3n
MP2
C3
0,1µ
R22
56k
T4
J 111A
B18 I
CD4011
B18 II
B19 IV
Modulationsgenerator
Modulation generator

Modulationsteiler
Modulation attenuator




R63
6,8k
+15V
GL7
BZX79/
C7V5
R62
1M
7,6V
MP11
C12
22µ
B8 IV
CD4066
R66
10k
B7 I
CA3240E
B7 II
CA3240E
R64
90,9 k
R65
10k
B8 III
MP10
1,77V~/100%
AM int.
R60
4,64k
R67
10k
R70
1,74k
R71
100
R72
619
R75
2,55k
Pegel CW
Level CW
R76
5k
Pegel FM
Level FM
B80 I
CD4066
B80 II
B80 III
B80 IV
B9 I
CA3240AE
R73
10 k
C20
47µ
R74
10k
MP12
1,77V~/100%
AM int.
Mod
Mod
B 19 I
CD4069
R142
1M
B17 I
SN 72L044N
R143
1M
B17 IV
SN 72L044N
B 21 I
SN 72L044N
B20
B19
4b
Modulation ≈ 0,1
13b
AM

MP17
7.7 V-

R77 2,0k
R78 4,53k
+15V
C 21 22µ

MP13
5,05V CW
2,47V AM

Pegelteiler
Level attenuator

0,1dB R81 237
0,8dB R83 2,49k
0,2dB R86 681
1,6dB R88 5,17k
0,4dB R90 750

B9I CA3240AE
B10I CA3240AE

R80 9,09k
R82 27,4k
R84 27,4k
R87 27,4k
R100 27,4k
R85 10k
R89 10k

R75 5k
Mod. grad
Mod. depth

B12I CD4066
B12II
B12III
B13IV
B13I CD4066

R139 1M
R145 1M
R146 1M
R147 1M
R148 1M
R149 1M

B21III SN72L044N
B22 SN72L044N
B23

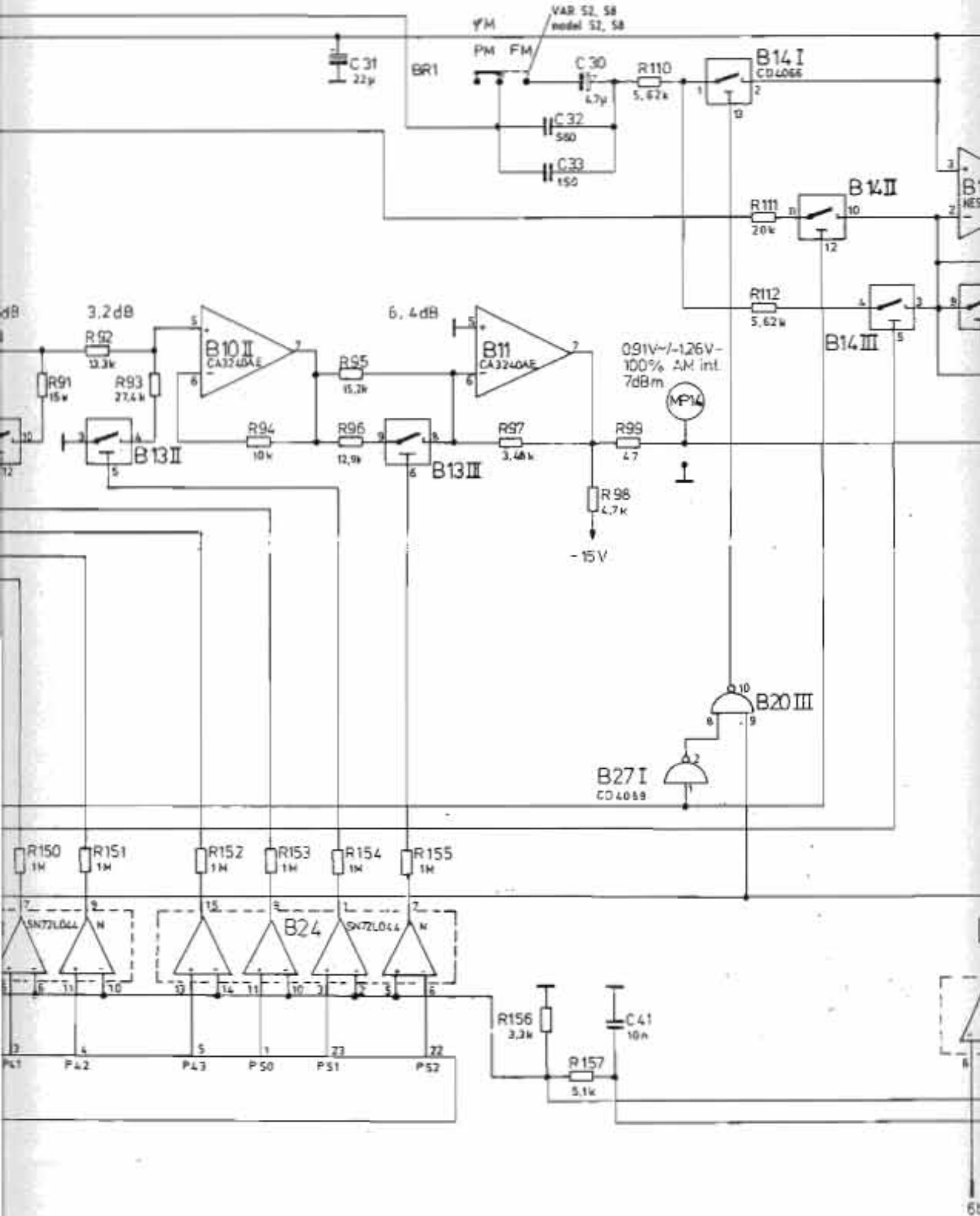
MP16

R144 1M
C40 22µ

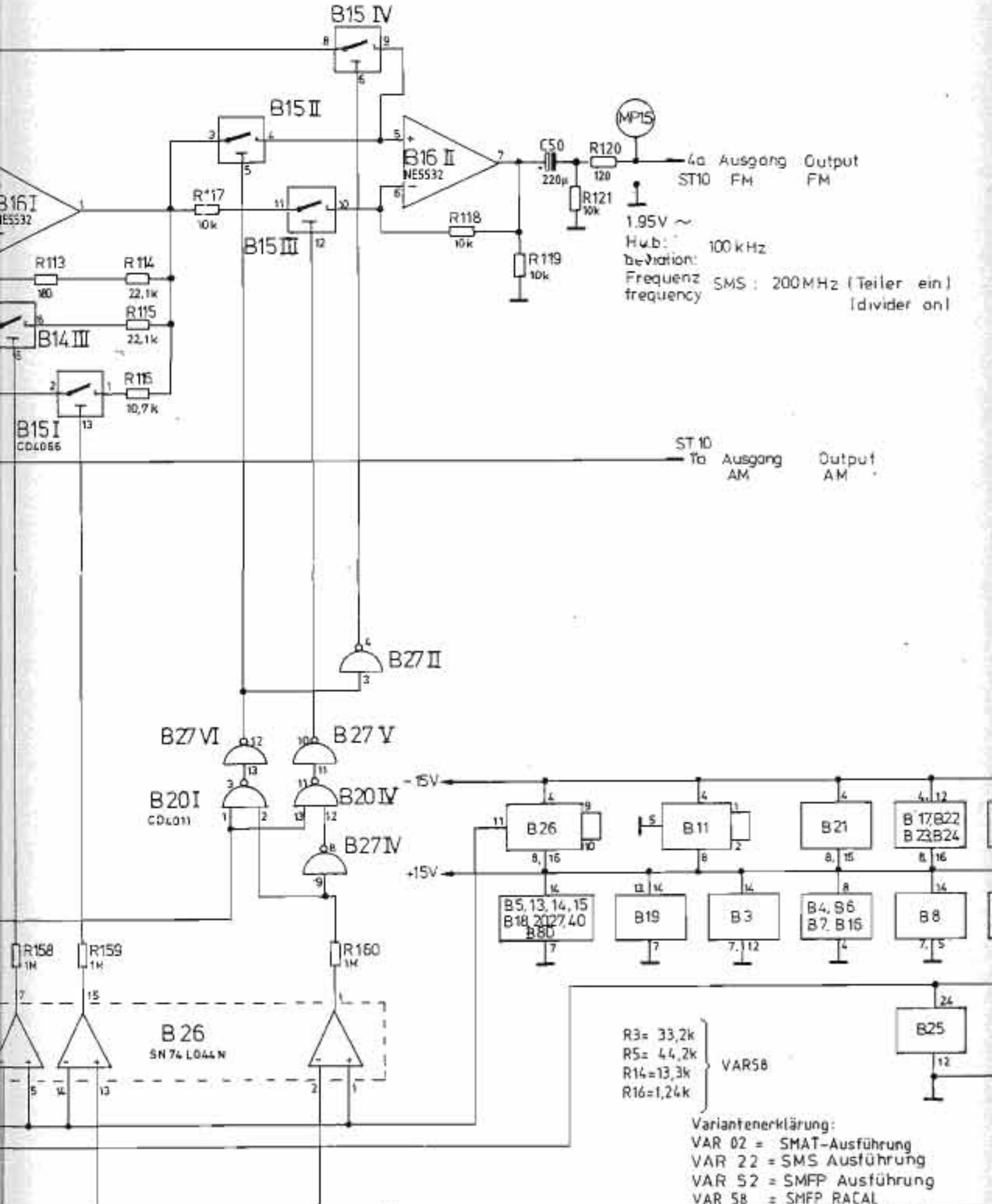
P60 P61 P62 P63 P70 P71 P72 P73 P40 P41

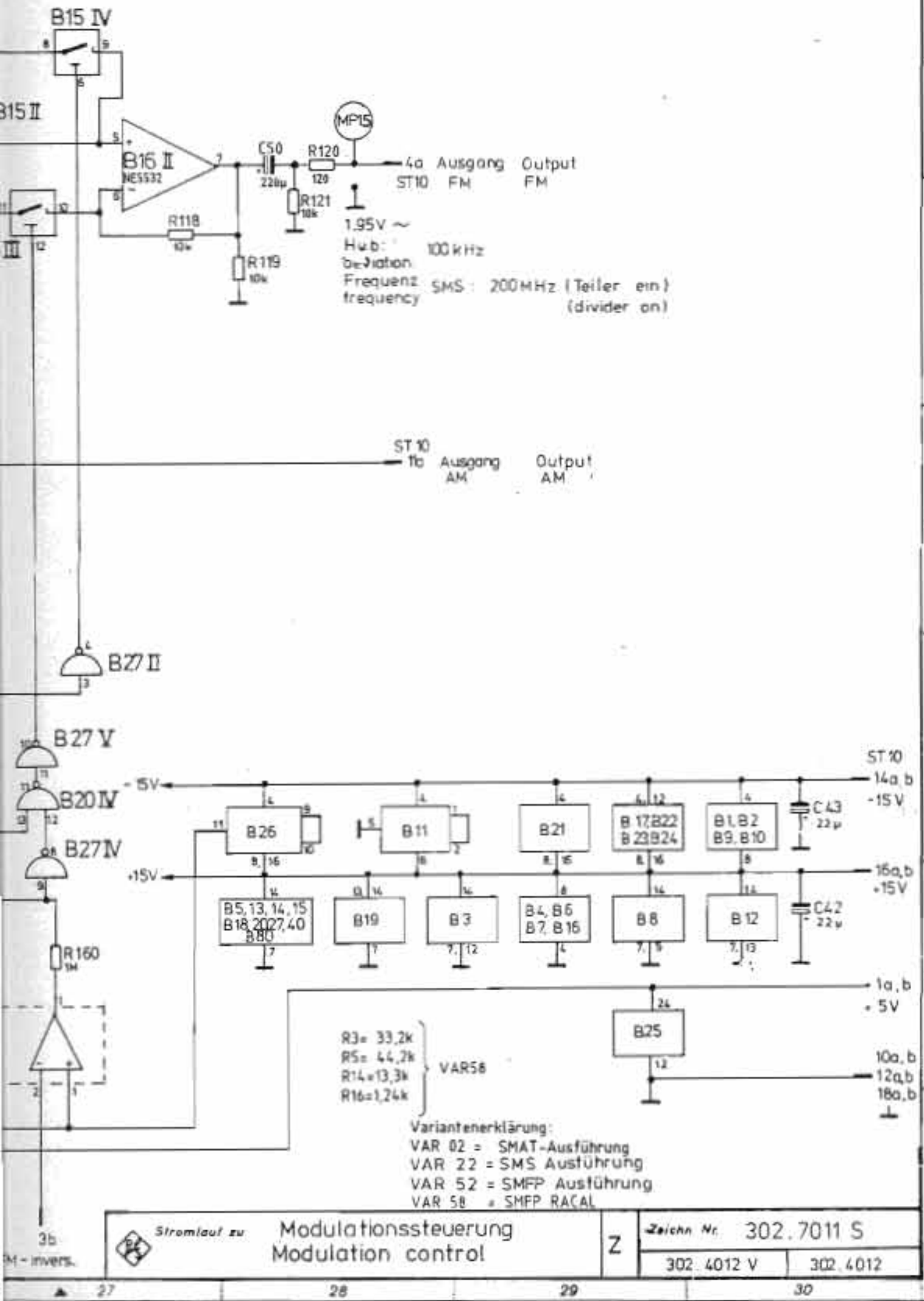
B25
P8243

11b FM
5a P20
8a
13a
15a P23
17a Prog
17b CS



Dividing Tele


B15 IV
B15 II
B15 III
B16 I
B16 II
NE5532
B14 III
B15 I
CD4066
MP15
C50
220µ
R120
120
R121
10k
R117
10k
R118
10k
R119
10k
R113
180
R114
22,1k
R115
22,1k
R116
10,7k
1,95V ~
Hub: 100 kHz
Deviation:
Frequenz SMS : 200 MHz (Teiler ein)
frequency (divider on)
4a Ausgang Output
ST10 FM FM
ST 10
7a Ausgang Output
AM AM
B27 II
B27 VI
B27 V
B20 I
CD4011
B20 IV
B27 IV
-15V
+15V
B26
B11
B21
B17,B22
B23,B24
B5,13,14,15
B18,20,27,40
B30
B19
B3
B4,B6
B7,B16
B8
B25
R158
1M
R159
1M
R160
1M
B 26
SN 74 L044 N
R3= 33,2k
R5= 44,2k
R14=13,3k
R16=1,24k
VAR58
Variantenerklärung:
VAR 02 = SMAT-Ausführung
VAR 22 = SMS Ausführung
VAR 52 = SMFP Ausführung
VAR 58 = SMFP RACAL
5b len
5b Verdoppeln Doubling
3b FM - invers.
Stromlauf zu
Modulationssteuerung
Modulation control
Z
Zeichn. N
302 4



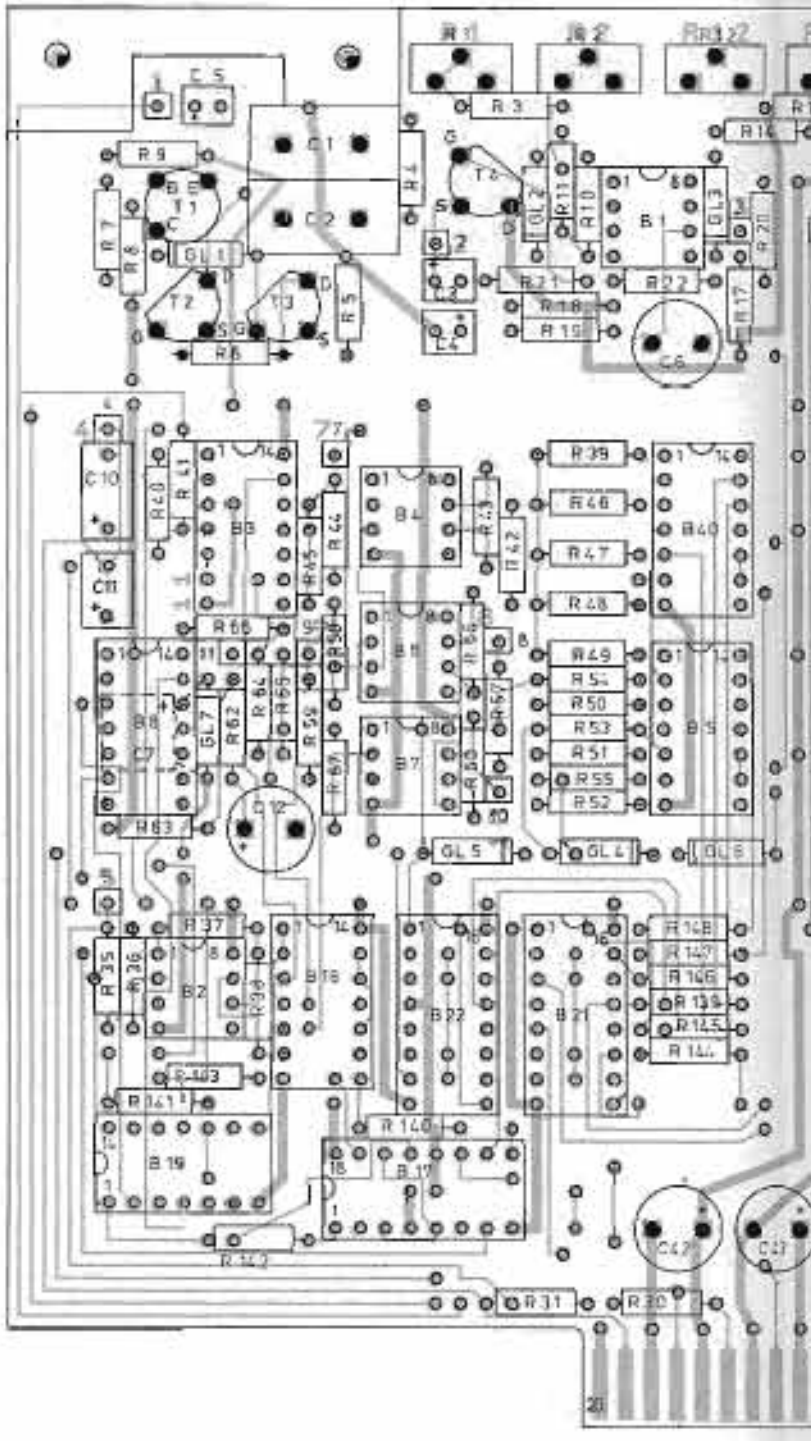
Stromlauf zu

Modulationssteuerung
Modulation control

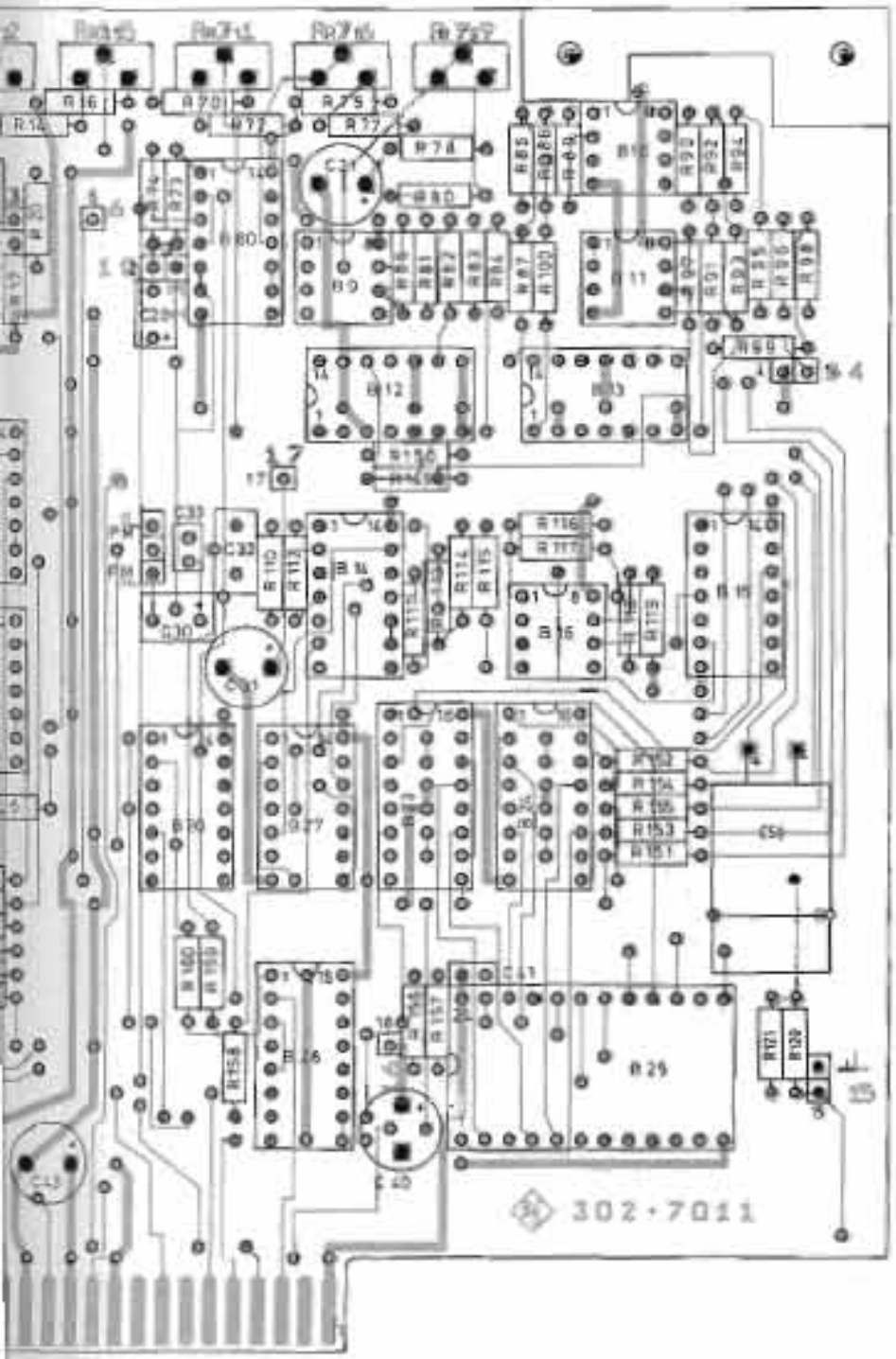
Z

Zeichn Nr. 302.7011 S

302.4012 V | 302.4012



Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



0 1 2 3
ZENTIMETER

A	24.791	02.78	Gn				
B	25.158	10.78	Gn				
C	ZP 027	02.82	Gn				
E	29853	04.83	ab				
F	30552	07.83	co	TGM	Tag	Name	
				Bearb.	20.9.78	NW	
				Gepr.			
				Norm.			

ROHDE & SCHWARZ

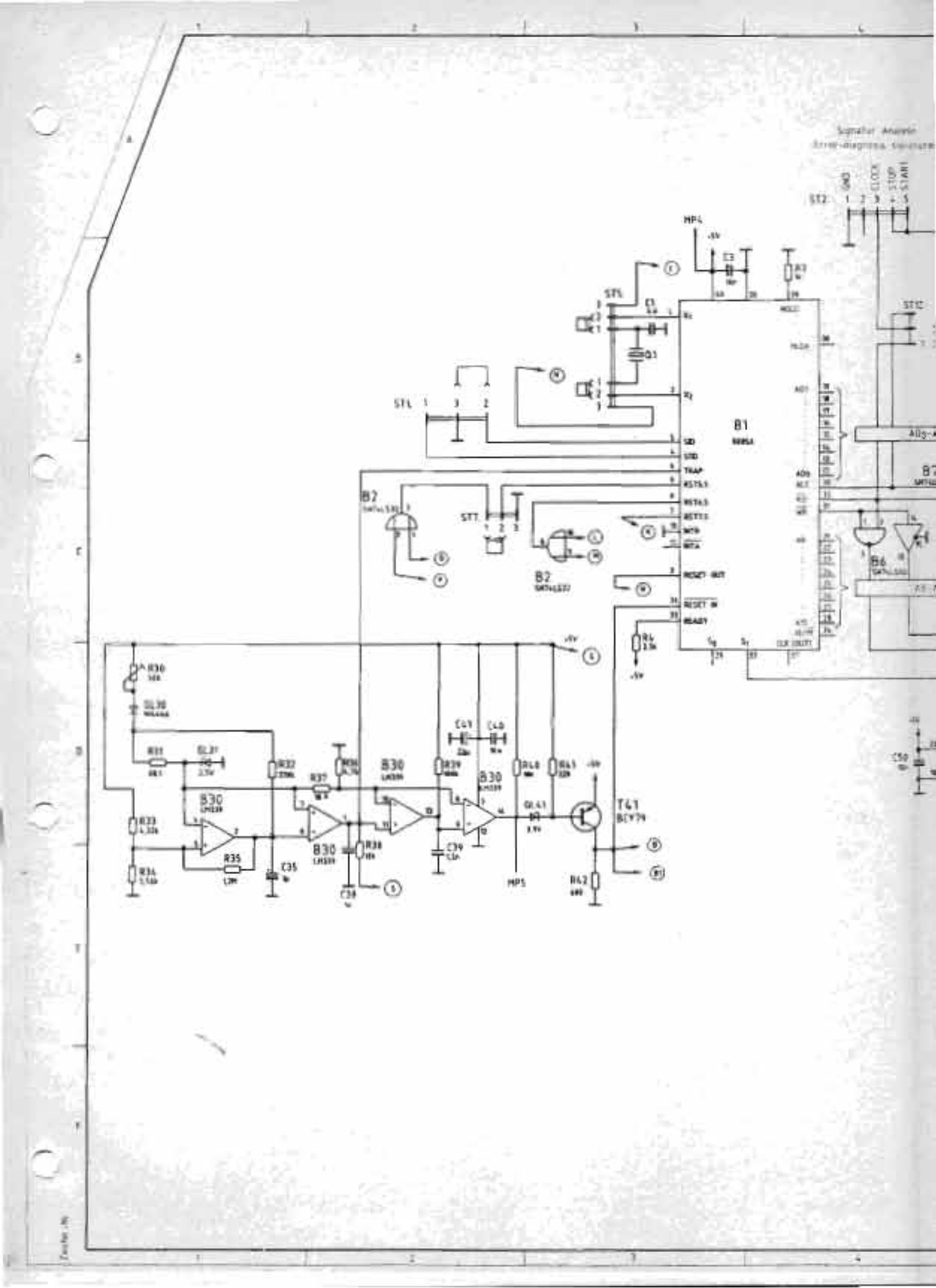
SMS

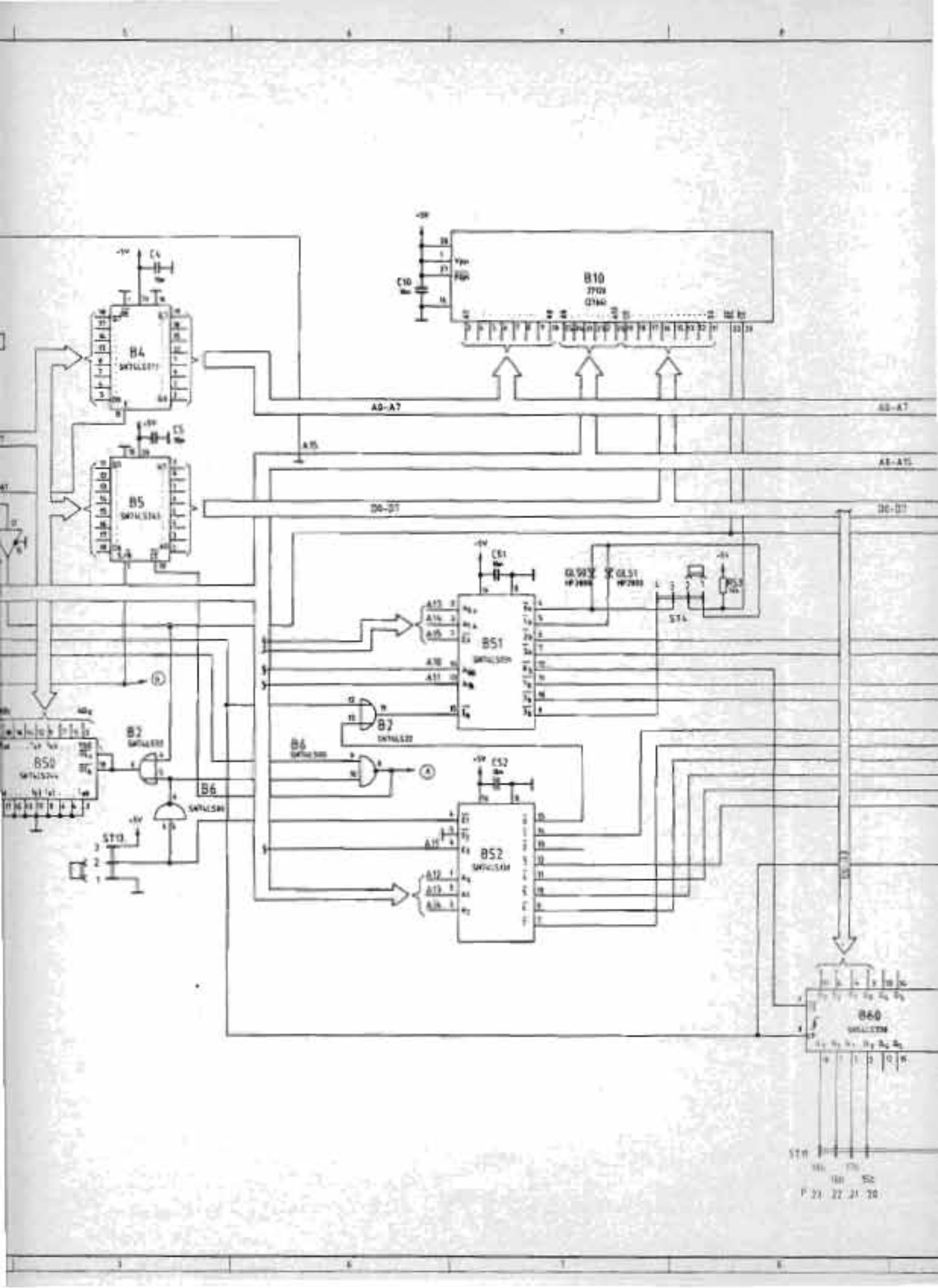
Modulationssteuerung
Modulation control

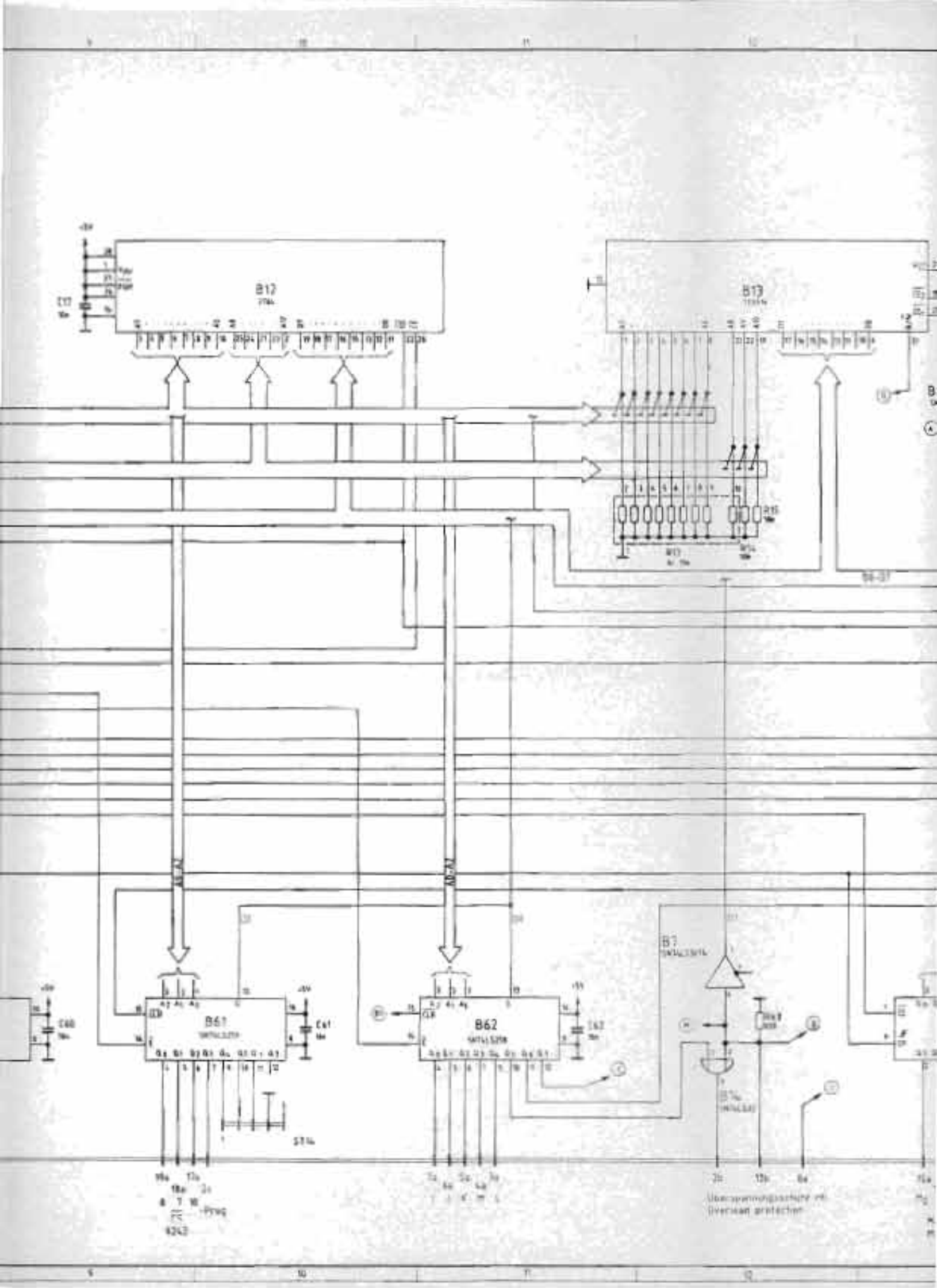
302.7011

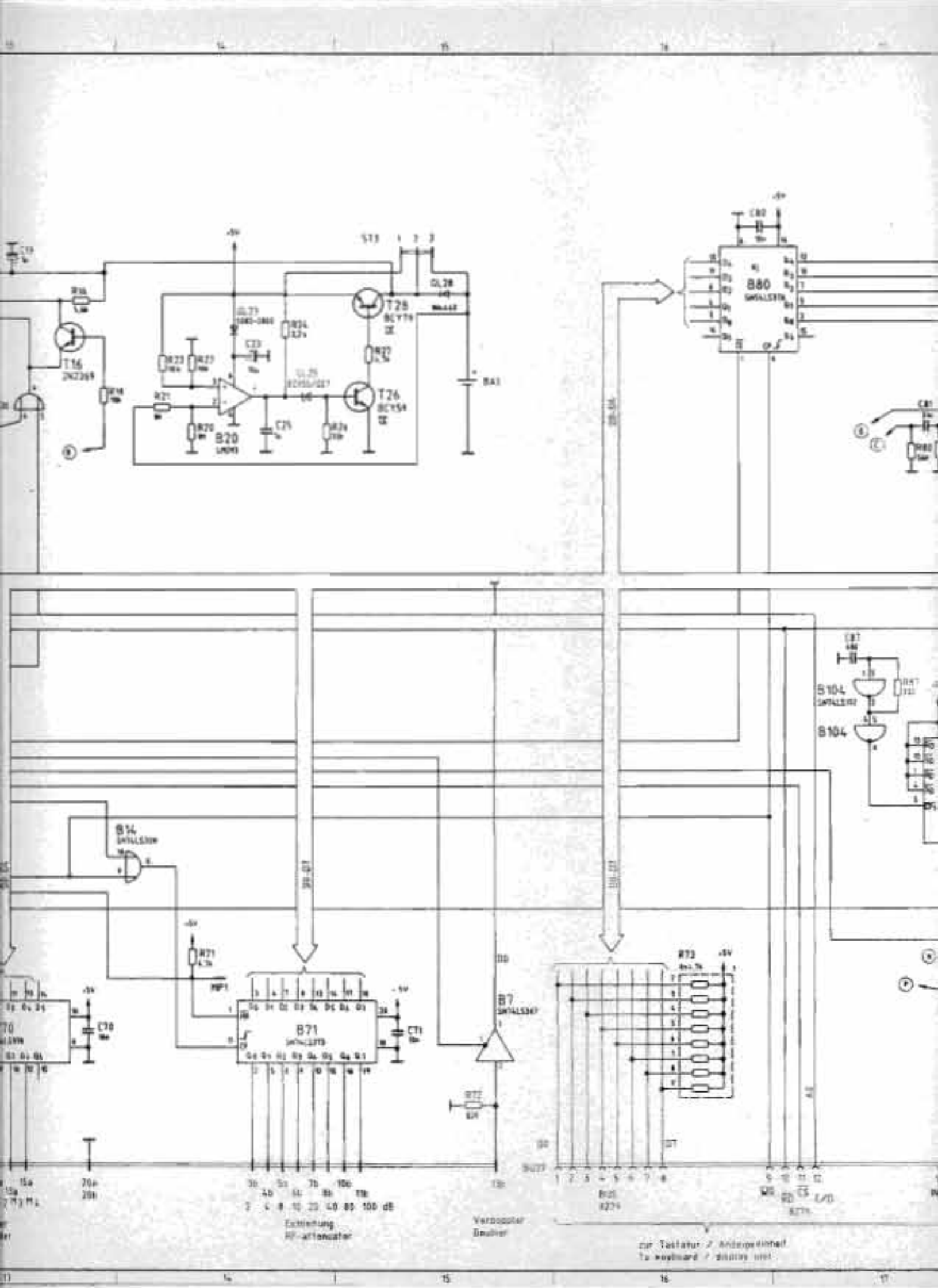
302 7011 V

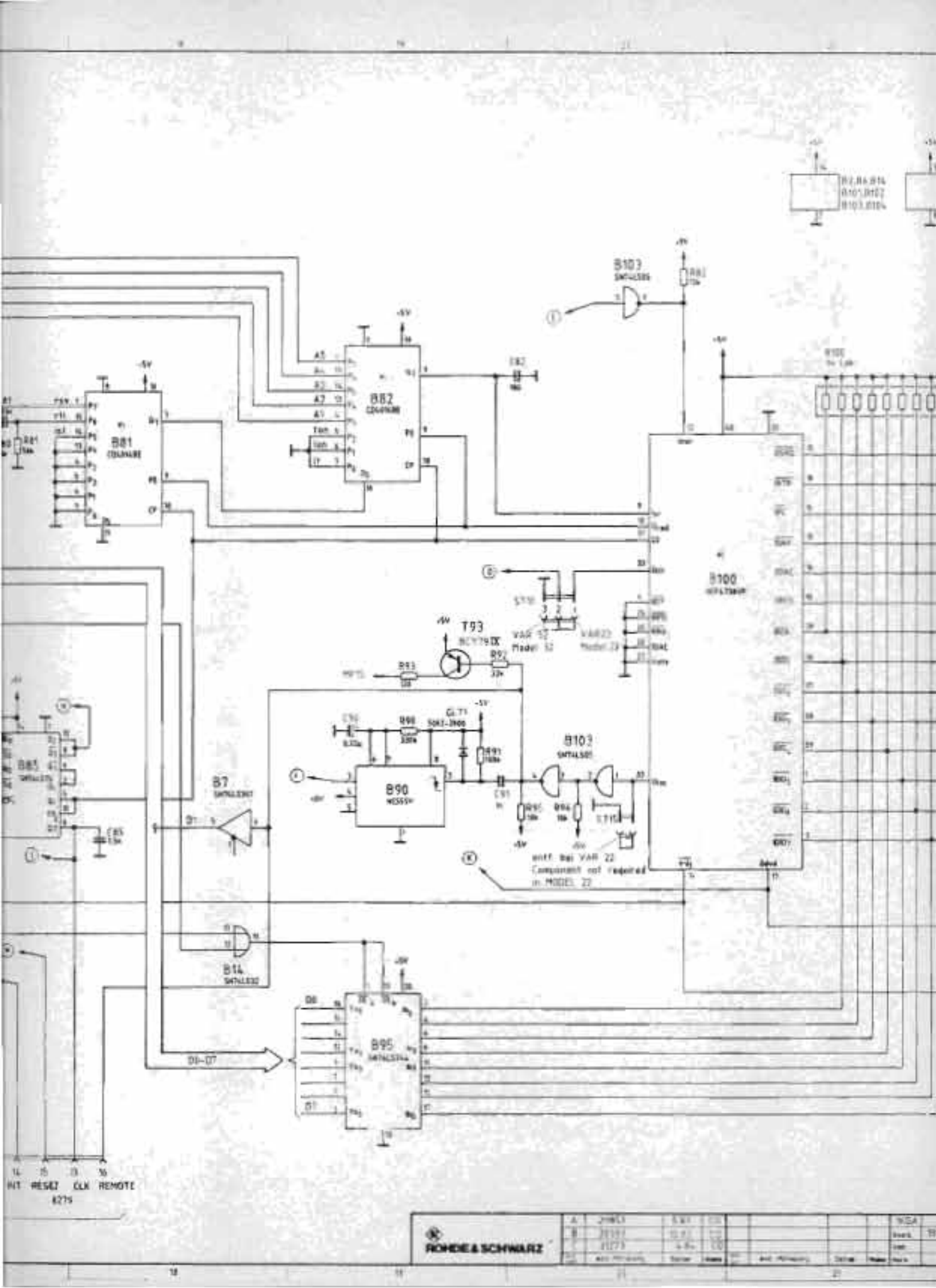
302 7011

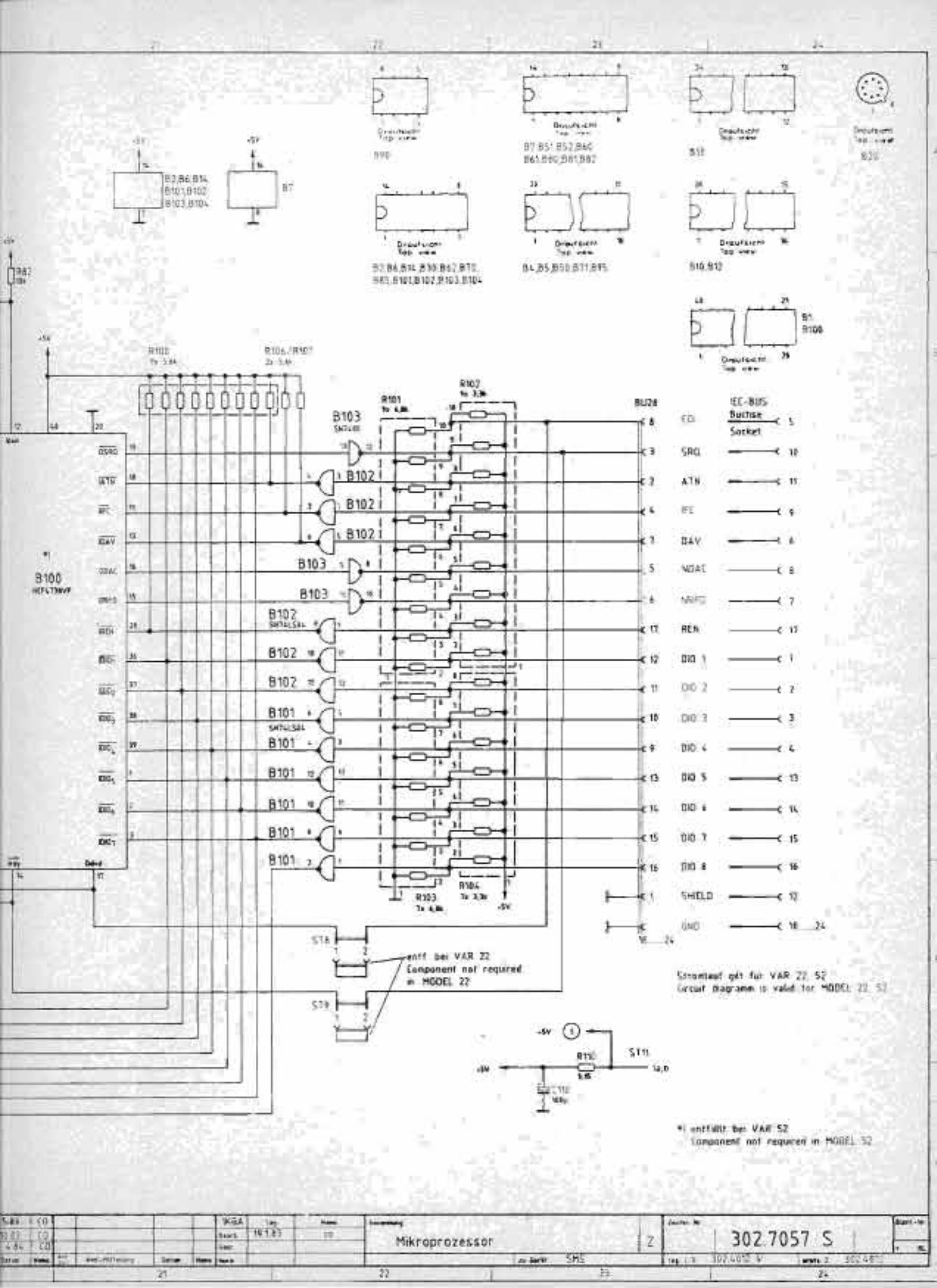

B1
B2
B30
T41
MP4
MP5
STL
STT
STC
R30
R31
R32
R33
R34
R35
R36
R37
R38
R39
R40
R41
R42
C35
C36
C39
C40
C41
C50
Q1
GND
CLOCK
STOP
START


B10
A0-A7
A8-A15
D0-D7
B4
B5
B51
B52
B2
B6
B50
B60
ST3
ST4
ST5
ST6

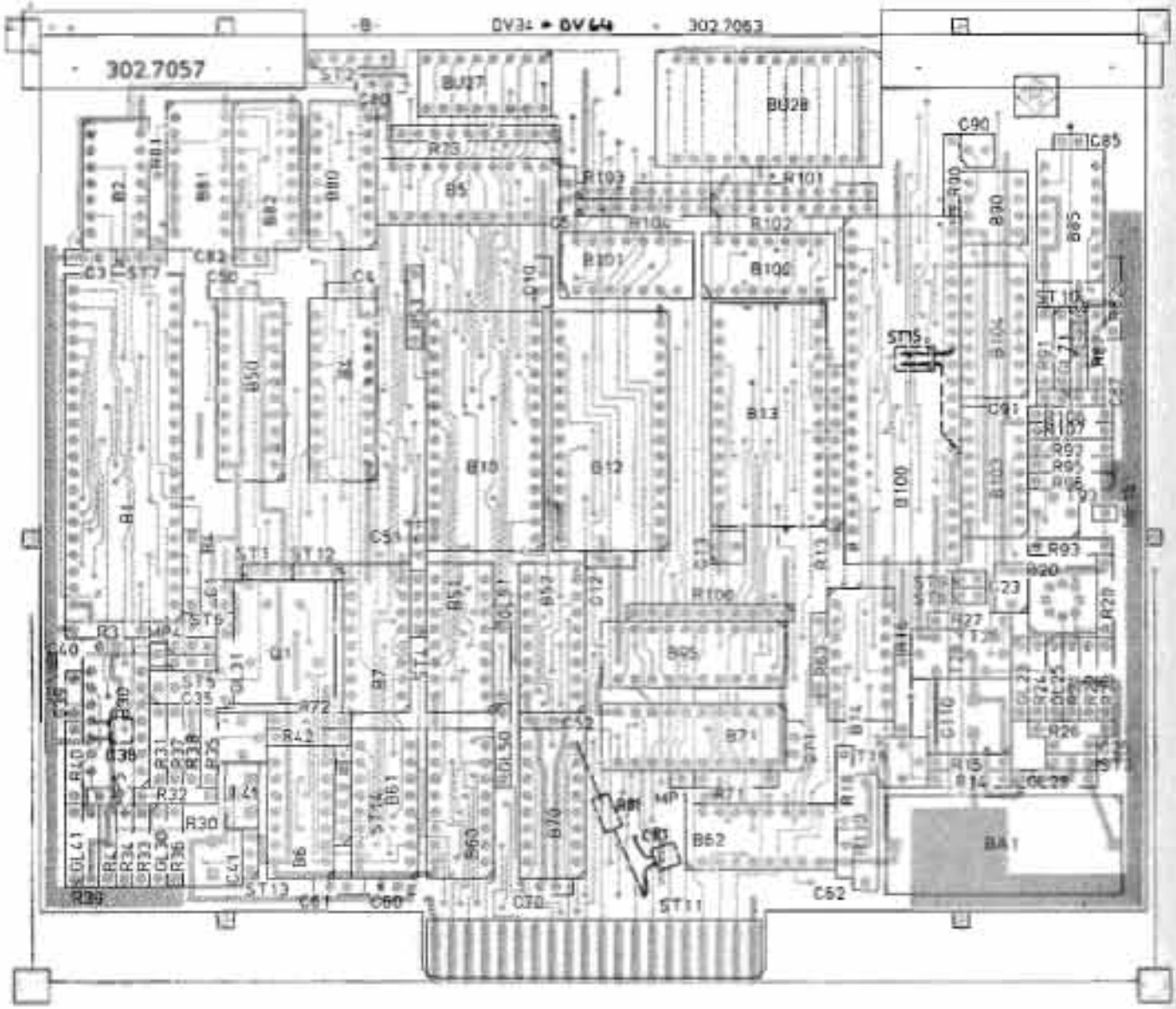

B12
B13
B61
B62
B7
Überspannungsschutz mit
Overload protection

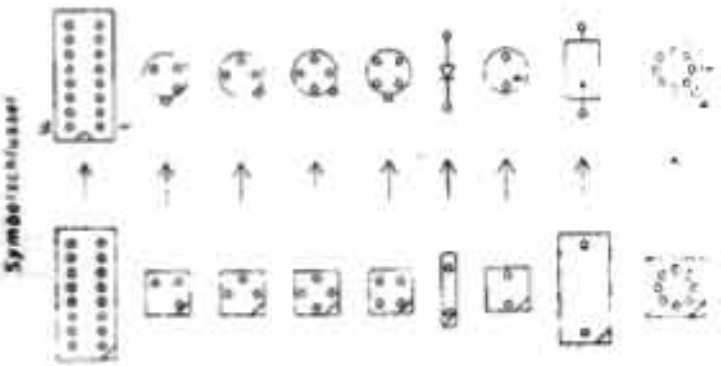

B20
T16
T25
T26
B80
B104
S104
B14
B71
B7
R73
Verzögerer
Dämpfer
zur Tastatur / Anzeigeeinheit
To keyboard / display unit


B103
B82
B81
B100
T93
B90
B7
B14
B95
B85
B103
VAR 22
Model 22
VAR 23
Model 23
-5V
+5V
D0-D7
INT
RESET
CLK
REMOTE
8275
ROHDE & SCHWARZ


B100
B103
B102
B101
R101
R102
R103
R104
R107
BUS8
IEC-BUS
Buchse
Socket
DIO 1
DIO 2
DIO 3
DIO 4
DIO 5
DIO 6
DIO 7
DIO 8
EOI
SRQ
ATN
IFC
DAV
NDAC
NRFD
REN
SHIELD
GND
ST8
ST9
ST11
entf. bei VAR 22
Component not required in MODEL 22
Schaltbild gilt für VAR 22, 52
Circuit diagramm is valid for MODEL 22, 52
*) entfällt bei VAR 52
Component not required in MODEL 52
Mikroprozessor
302.7057 S

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side





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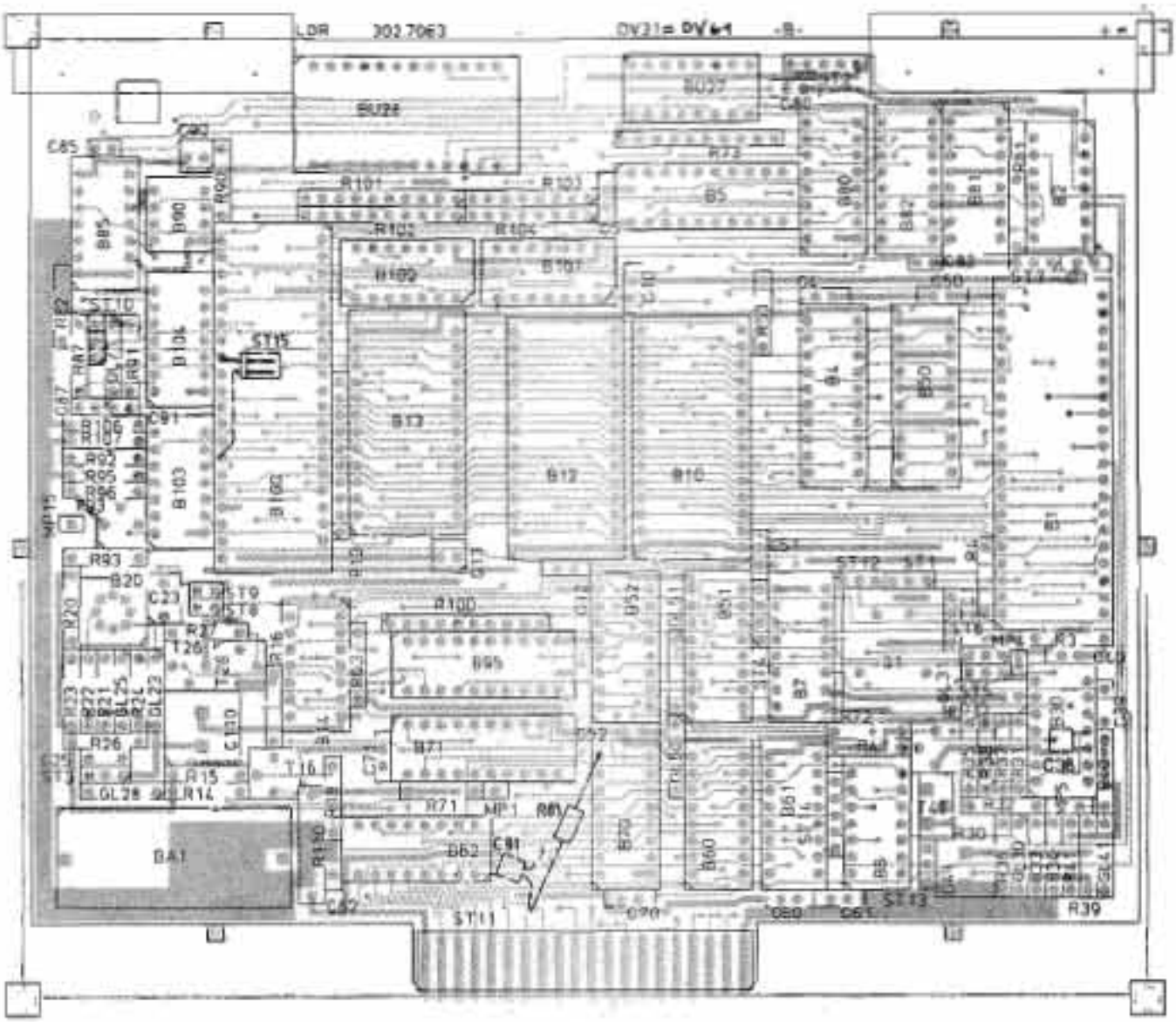
Ansicht und Leitungsführung Lotseite
View of tracks on solder side

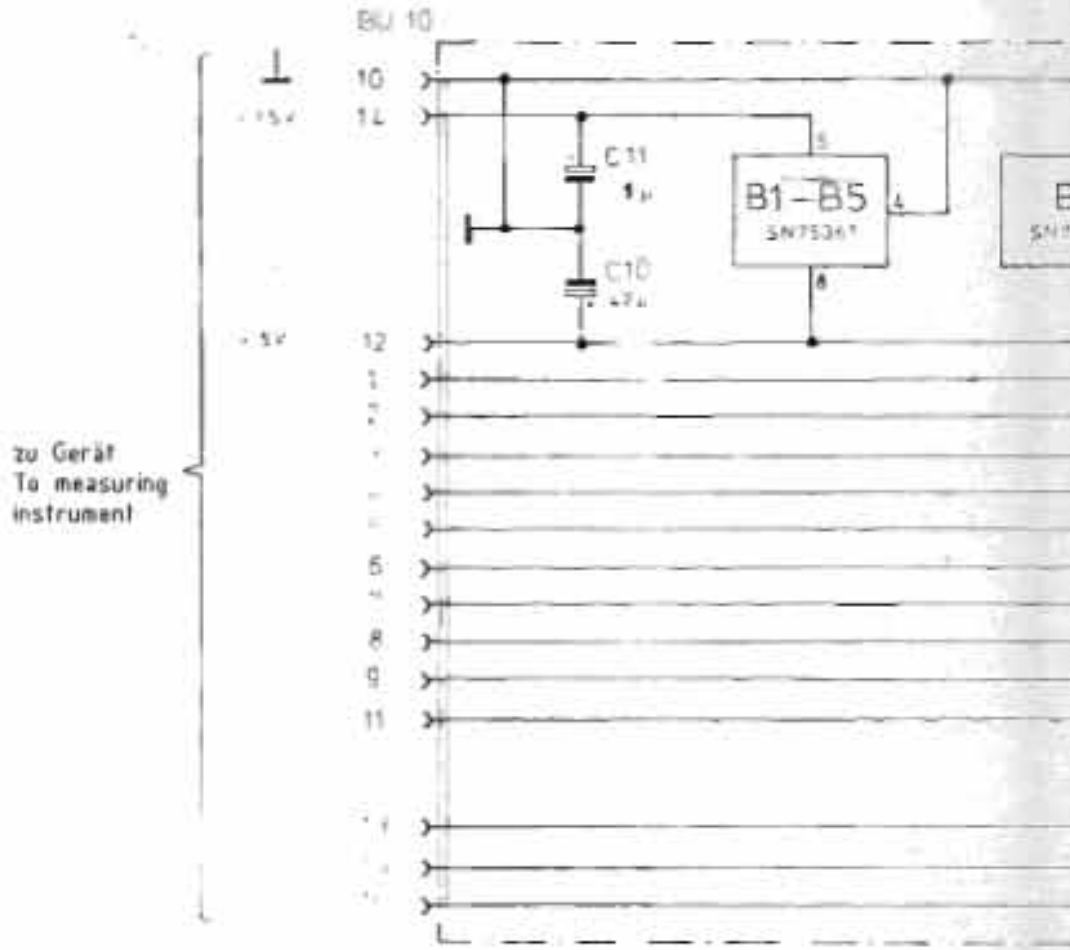


Achtung! MOS-Bauteile
Caution. MOS components

C	29853	5.83	CO	Maße ohne Toleranzangabe	Maßstab 1:1	
E	31273	7.84	GS		Halbzeug, Werkstoff	
				1KGA: Tag 1.83 Name CO Bearb Gepr Norm	Benennung MIKROPROZESSOR Microprocessor	Z
				ROHDE & SCHWARZ	Zeichn.-Nr. 302.7057	Blatt-Nr. 2 v. BI
Änd. Zust.	Änderungsmitteilung	Tag	Name	zu Gerät SMS	Nfg. v 302.4010 V	ersetzt 302.4010

Dämpfungsglieder eingeschaltet bei
High-Signal an den Eingängen.

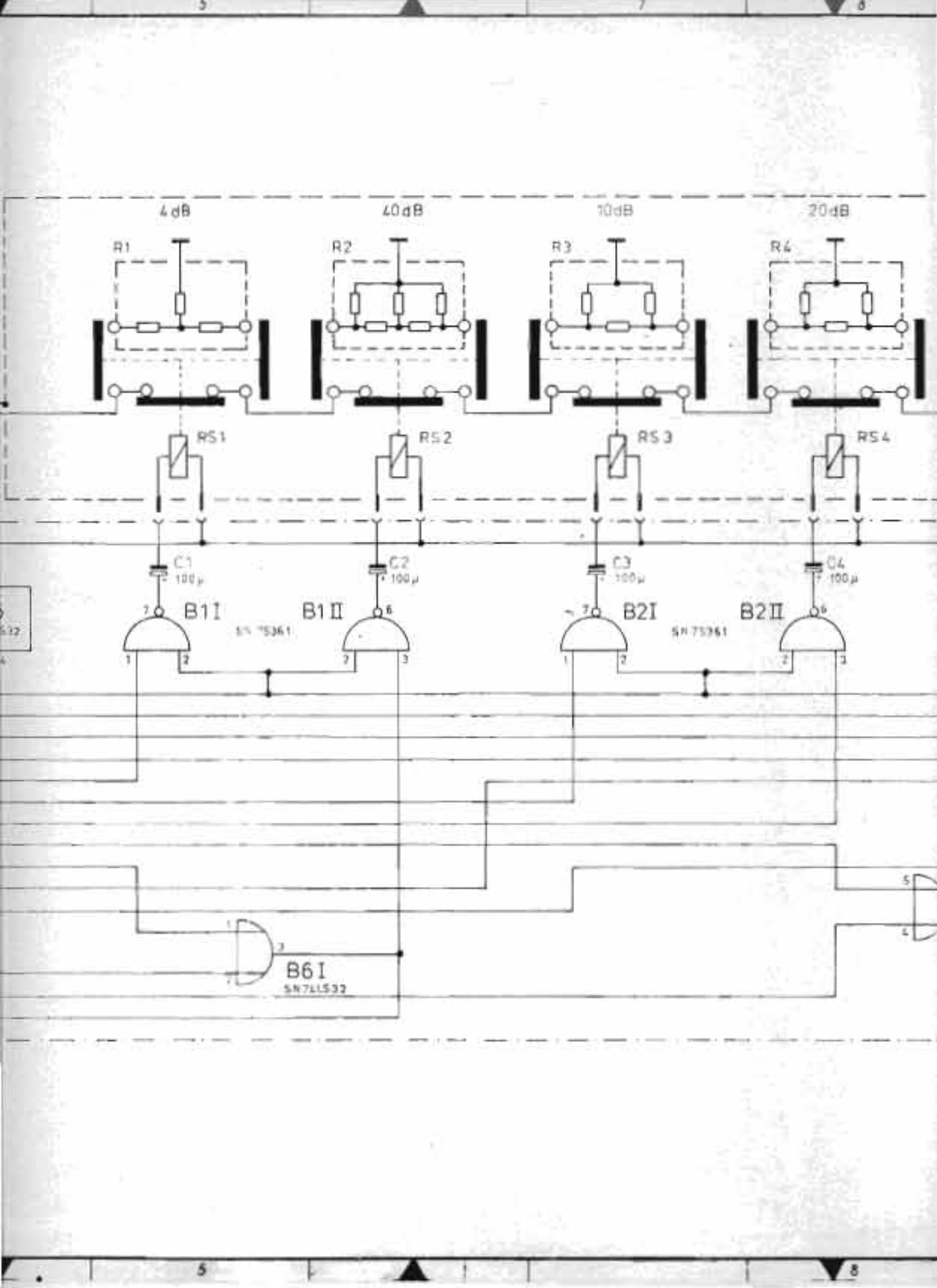
Attenuator pads switched on
High-signal at the inputs

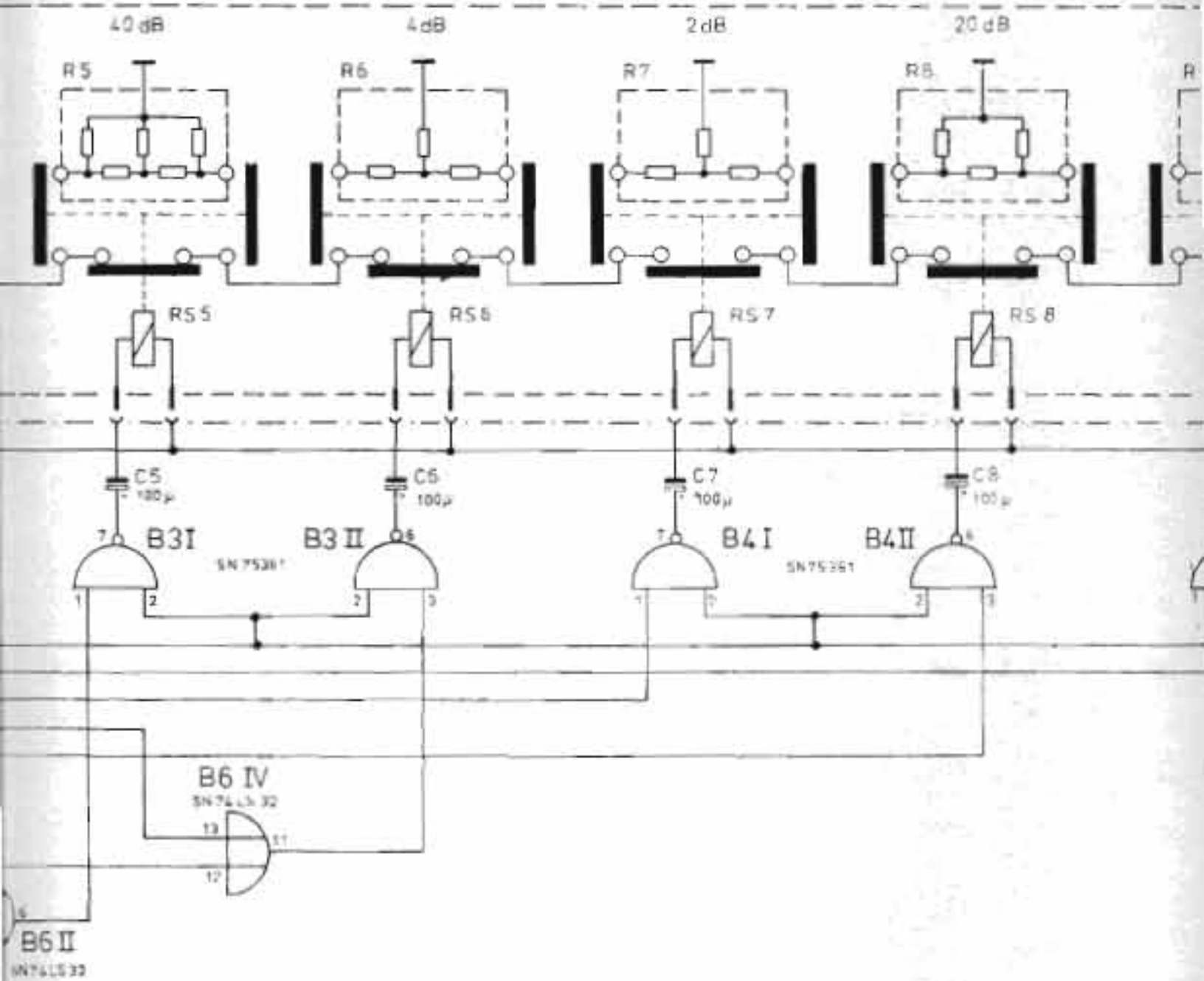


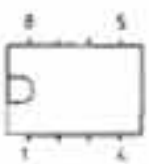
ROHDE & SCHWARZ · MÜNCHEN

	Änd.-Index	Datum	Name
A	24668	02.79	MÜ
B	28027	02.82	Gn
C	28613	09.82	ib

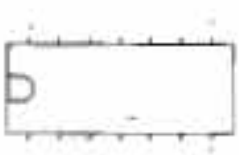
	Datum	Name
gezeichnet	13.9.78	Hg
bearbeitet	09.78	Gn
geprüft		
genehmigt		


4dB
40dB
10dB
20dB
R1
R2
R3
R4
RS1
RS2
RS3
RS4
C1
100µ
C2
100µ
C3
100µ
C4
100µ
B1I
B1II
B2I
B2II
SN 75361
B6I
SN74LS32



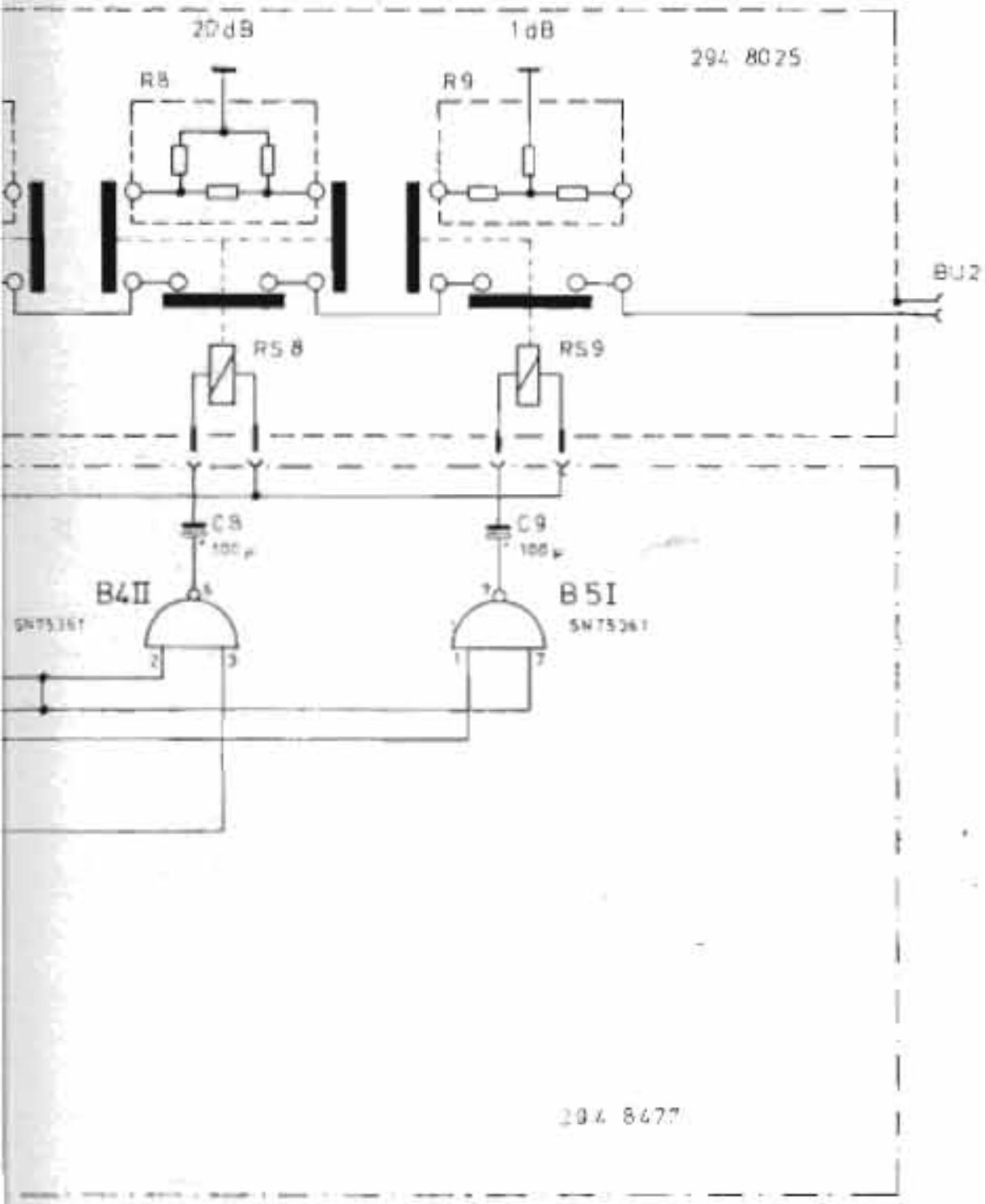


B1 B5



B6

Stromlauf zu
Baugruppe
RF -



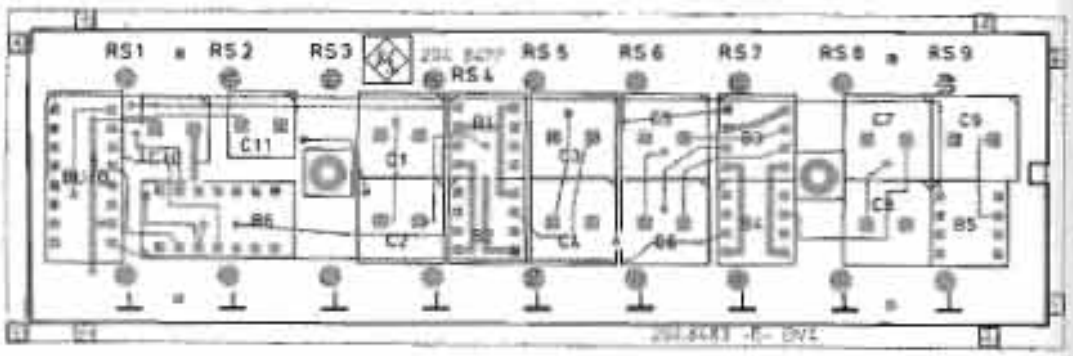
Stromlauf zu
Baugruppe Eichleitung für SMS
RF - Attenuator for

Z

Zeichn. Nr. 302.7311 S

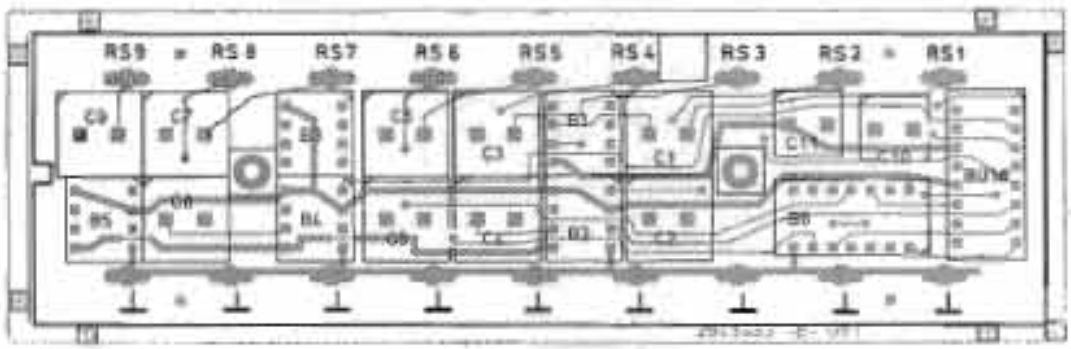
302.4012 V

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

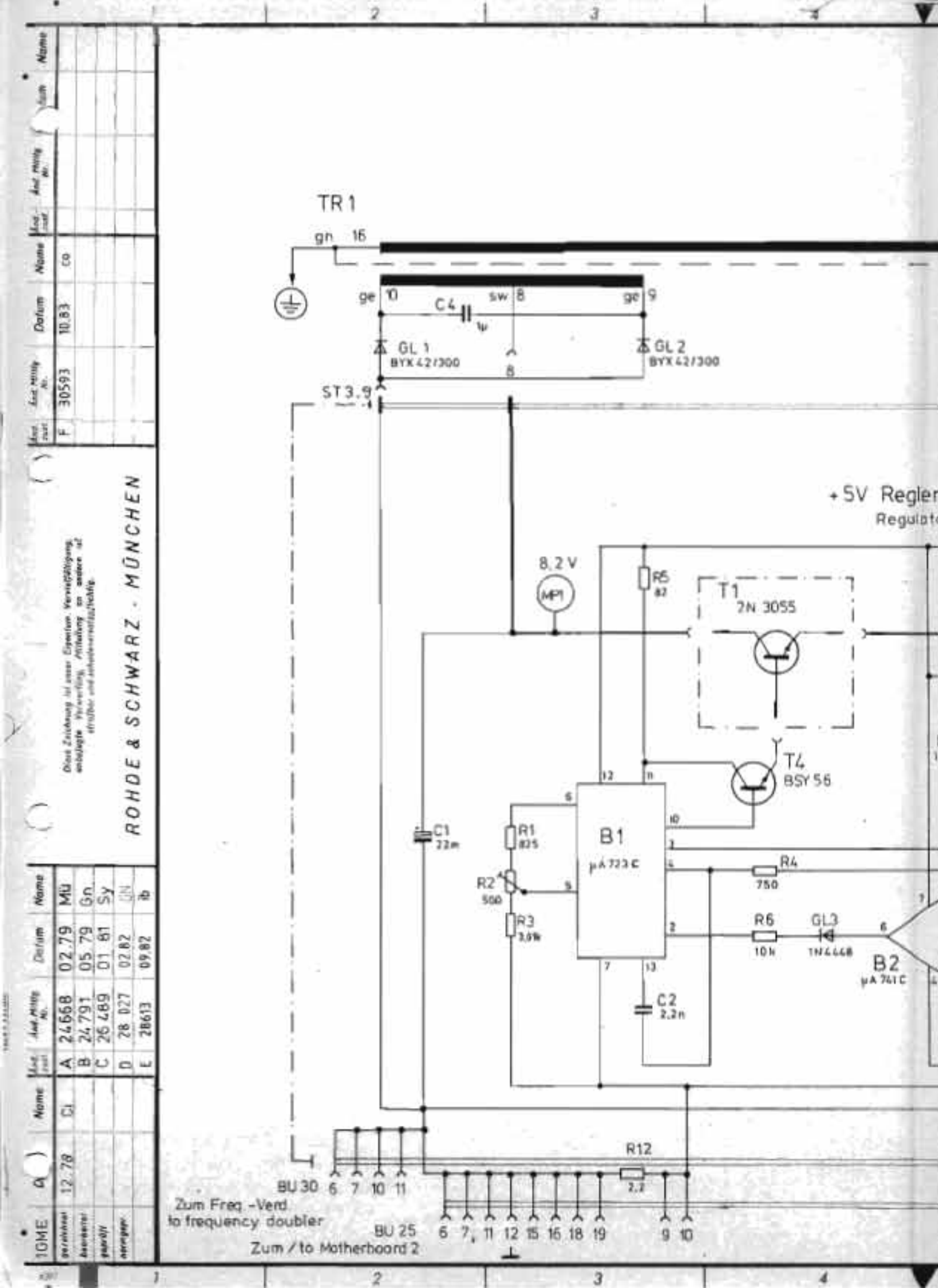


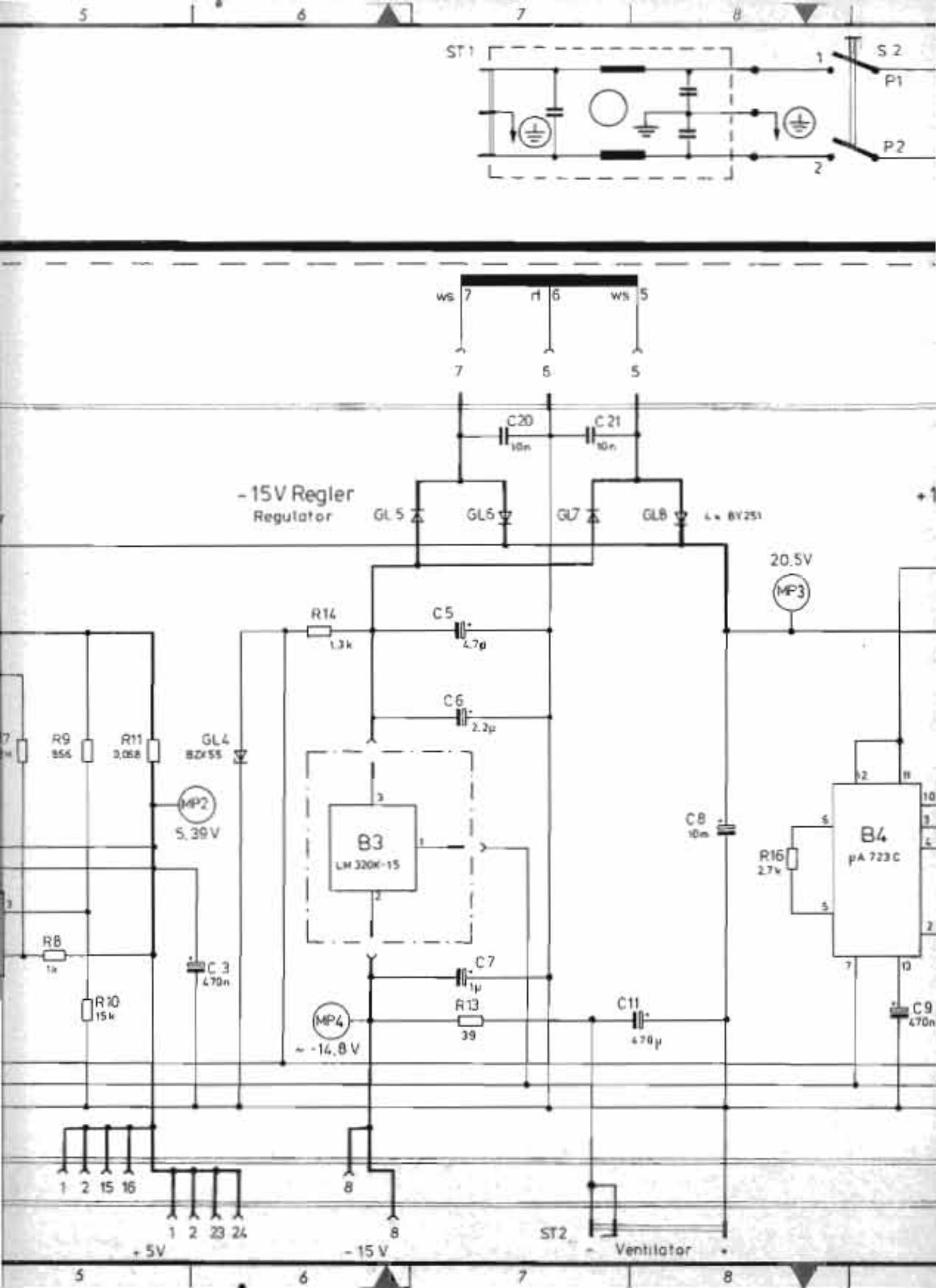
Für diese Zeichnung behalten wir uns alle Rechte vor

Ansicht und Leitungsführung Lötseite
View of tracks on solder side



Versorg.-Nr.						TG-Sachnr.	
D	———	9.78	Nk	Maße ohne Toleranzangabe		Maßstab 1 : 1	
E	25525	11.79	Pl.			Herstellung Werkstoff	
				IGM	Tag	Name	Benennung: Ansteuerung 1 / Control unit 1 — Z
				Bearb	12.9.78	Nk	
				Gepr.			
				Norm			
				ROHDE & SCHWARZ MÜNCHEN			Zeichn.-Nr. 294.8477 — Blatt-Nr. 2
Änd. Zust.	Änderungs-Mitteilung	Tag	Name	zu Gerät			reg. : V 294.8019V — erste Z 294.8019


TR 1
gn 16
ge 10
C4
sw 8
ge 9
GL 1
BYX 42/300
GL 2
BYX 42/300
ST 3.9
+5V Regler
8.2 V
MP1
R5
82
T1
2N 3055
T4
BSY 56
C1
22n
R1
825
B1
µA 723 C
R2
500
R3
3.0k
R4
750
R6
10k
GL3
1N4448
B2
µA 741 C
C2
2.2n
R12
2.2
BU 30 6 7 10 11
Zum Freq.-Verd.
to frequency doubler
BU 25 6 7 11 12 15 16 18 19 9 10
Zum / to Motherboard 2
ROHDE & SCHWARZ · MÜNCHEN


ST1
S 2
P1
P2
ws 7
rt 6
ws 5
C20
10n
C21
10n
- 15V Regler
Regulator
GL 5
GL6
GL7
GL8
4x BY251
20.5V
MP3
R14
1.3k
C5
4.7µ
C6
2.2µ
R9
956
R11
3,058
GL4
BZX55
MP2
5,39V
B3
LM 320K-15
C8
10m
B4
µA 723C
R16
2.7k
R8
1k
C3
470n
R10
15k
C7
1µ
MP4
~ -14,8 V
R13
39
C11
470µ
C9
470n
1 2 15 16
1 2 23 24
+ 5V
8
8
- 15 V
ST2
Ventilator

115 V 125V 220V 235V

Si 1
T 1,25 B L

Si 1 enthalten in
contained in
302 4012

br 11 ge 12 sw 13 bl 14 rt/sw 15

4 gn/sw gn/sw 3

4 3

C22 10n C23 10n

GL9 GL11 GL10 GL12 4 x BY 251

5V Regler
Regulator

R18 100

T2
2N 3055

MP6
25,5 V

MP7
25,5 V

R19 1,2M R21 430 R23 0,15 R27 0,15 R26 7,5k

C12 4,7µ C30 4,7µ

R25 2k

MP5
15,2 V

R17 10k GL13 1N4448

B5
µA 741 C

R20 820

R24 8,25k

R22 27k C10 470n

R28 3,3k

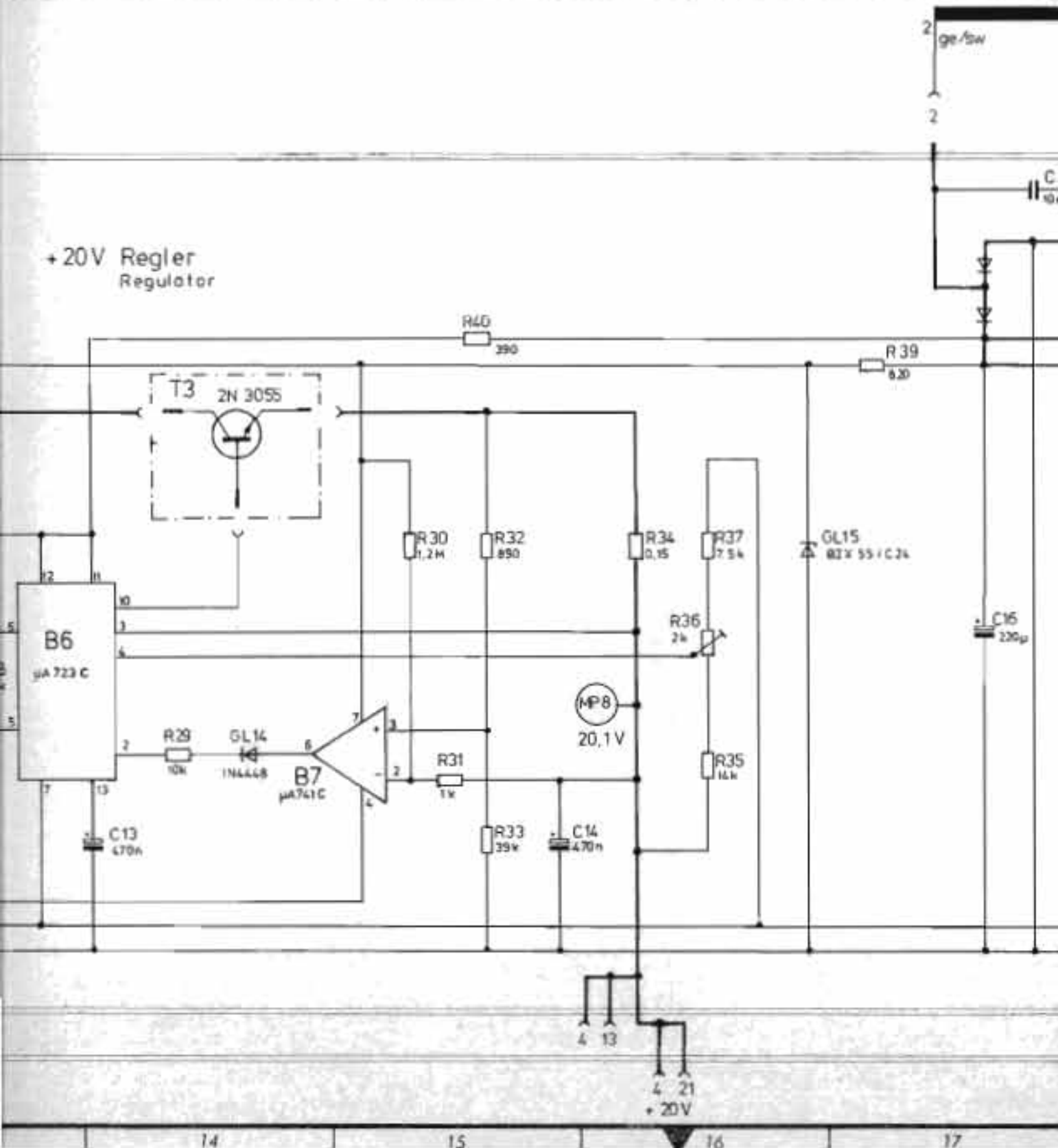
GL21 BZX55

GL22 BZX55

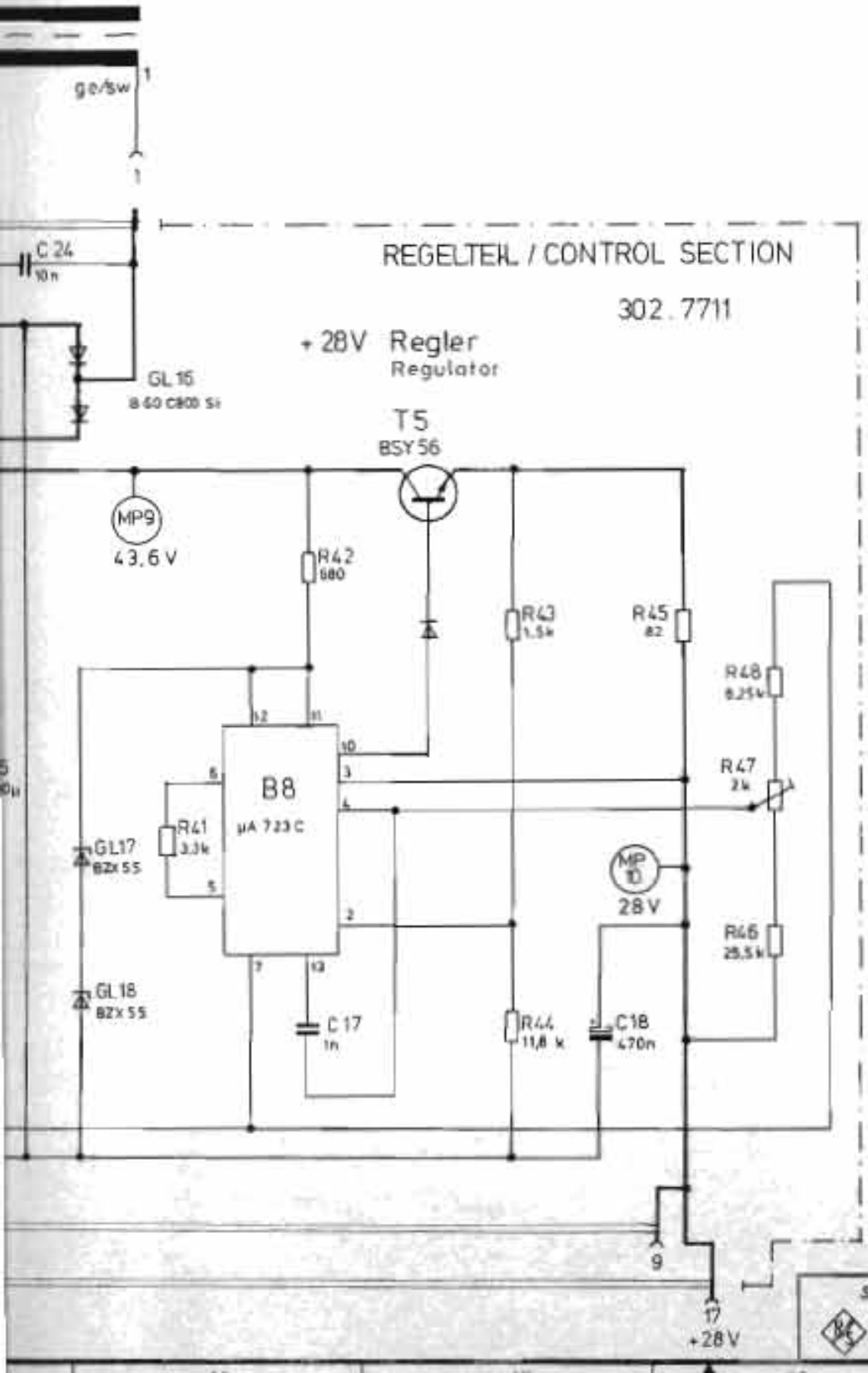
3 14 5 12

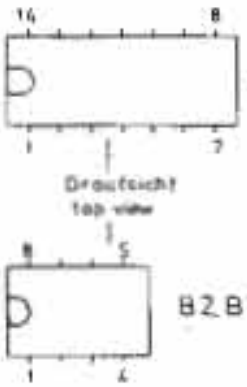
3 13 14 22

+15V +20V Überspg


+20V Regler
Regulator
R40
390
R39
820
T3
2N 3055
R30
1,2M
R32
850
R34
0,15
R37
7,5k
GL15
BZX 55/C24
B6
µA 723 C
R36
2k
C16
220µ
MP8
20,1V
R29
10k
GL14
1N4448
B7
µA741C
R31
1k
R35
14k
C13
470n
R33
39k
C14
470n
2
ge/sw
4 13
4 21
+20V

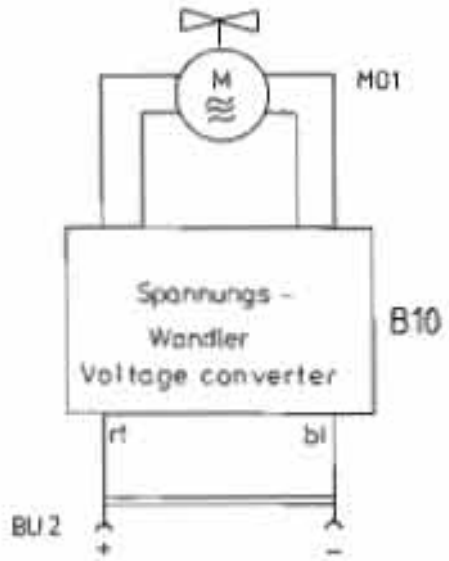
VENTIL





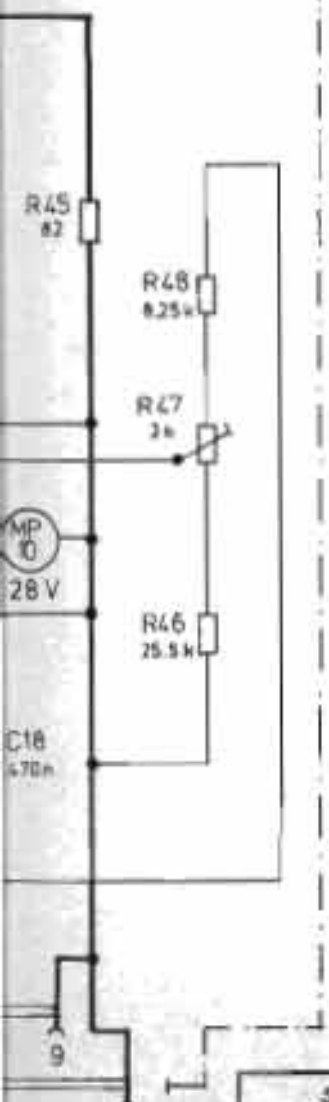
NETZTEIL
POWER SUPP

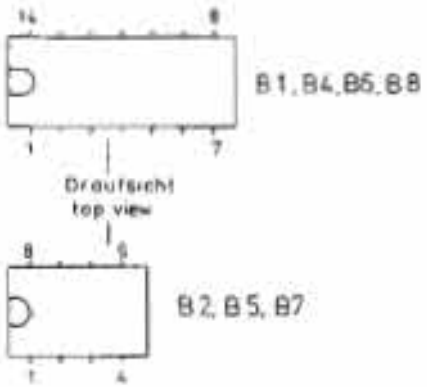
VENTILATOR

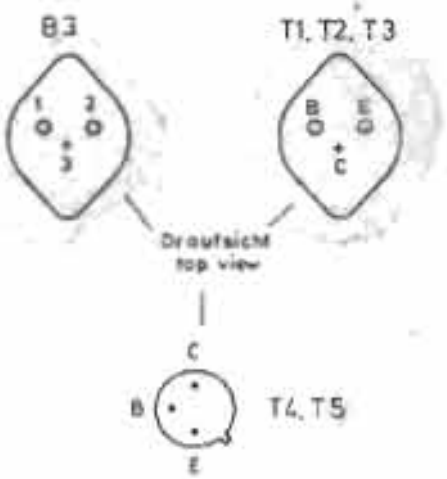


ROL SECTION

302.7711







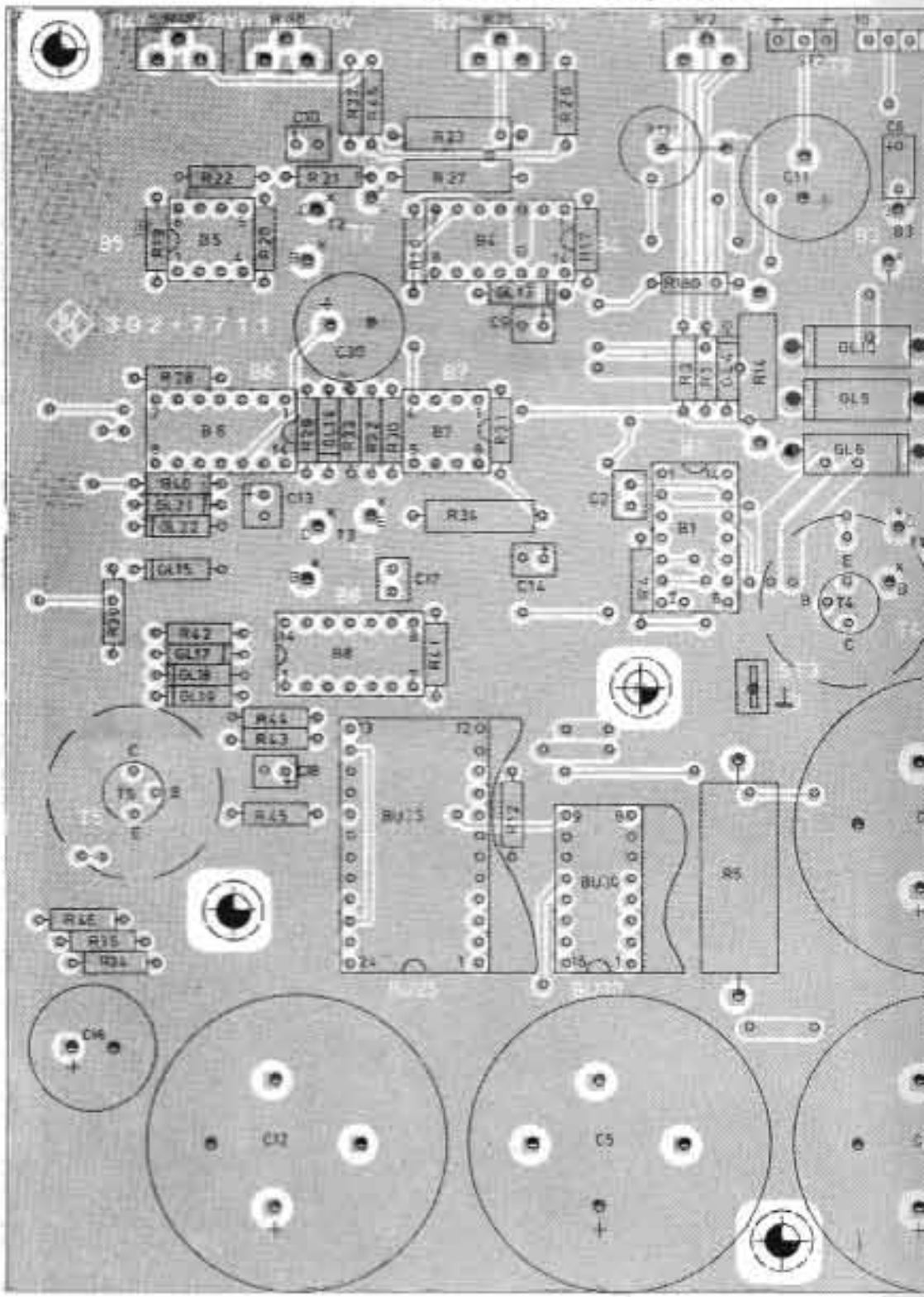
Stromlauf zu

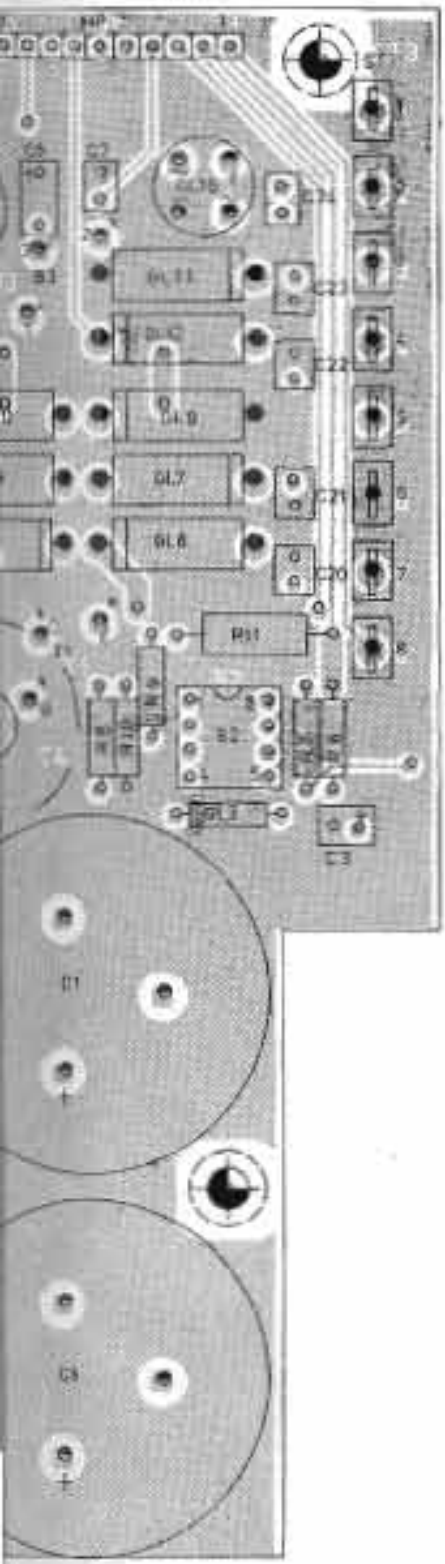
NETZTEIL
POWER SUPPLY

Zeichn. Nr. 302.7411 S

302.4012 V | 302.4012

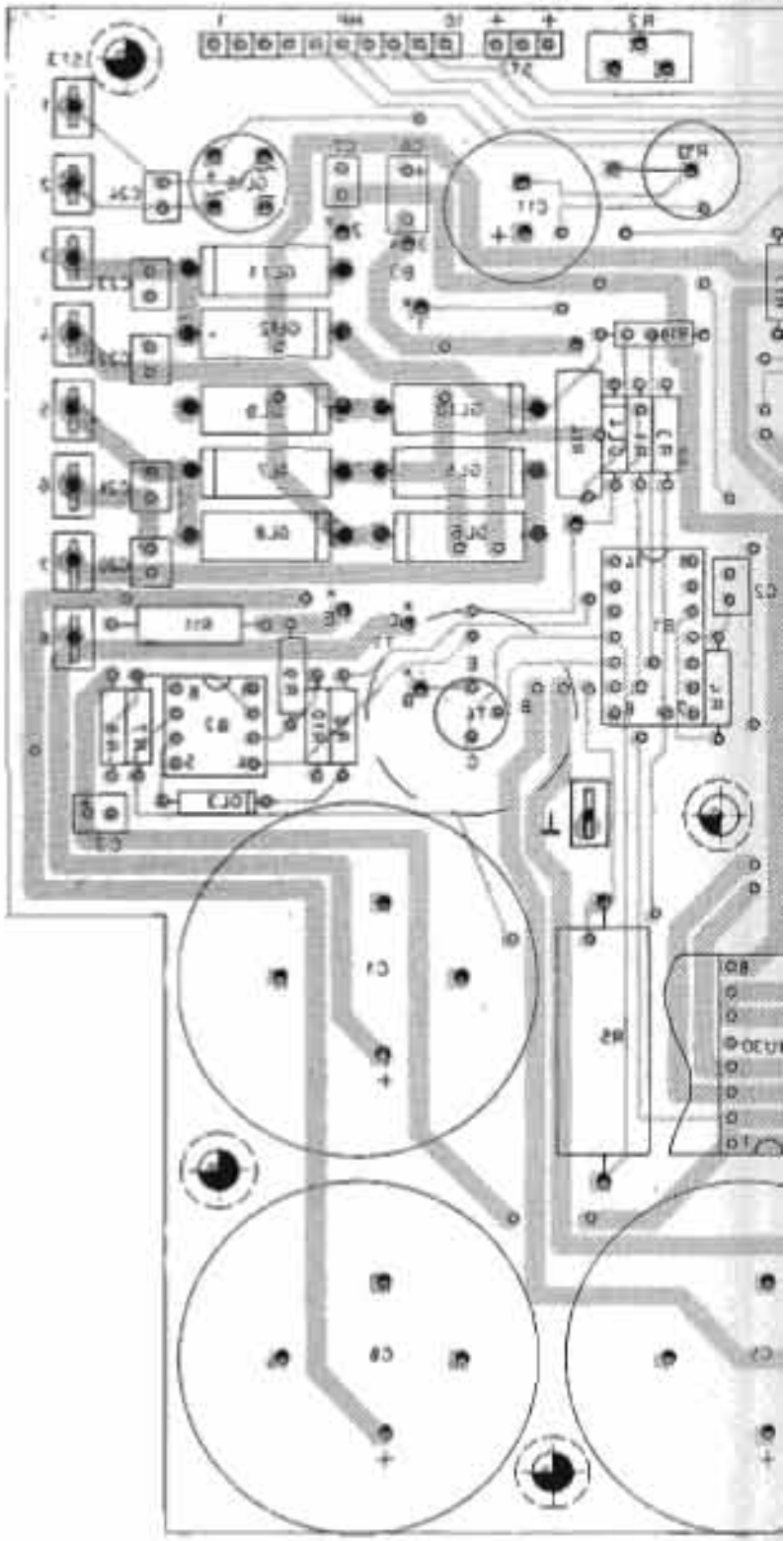
Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



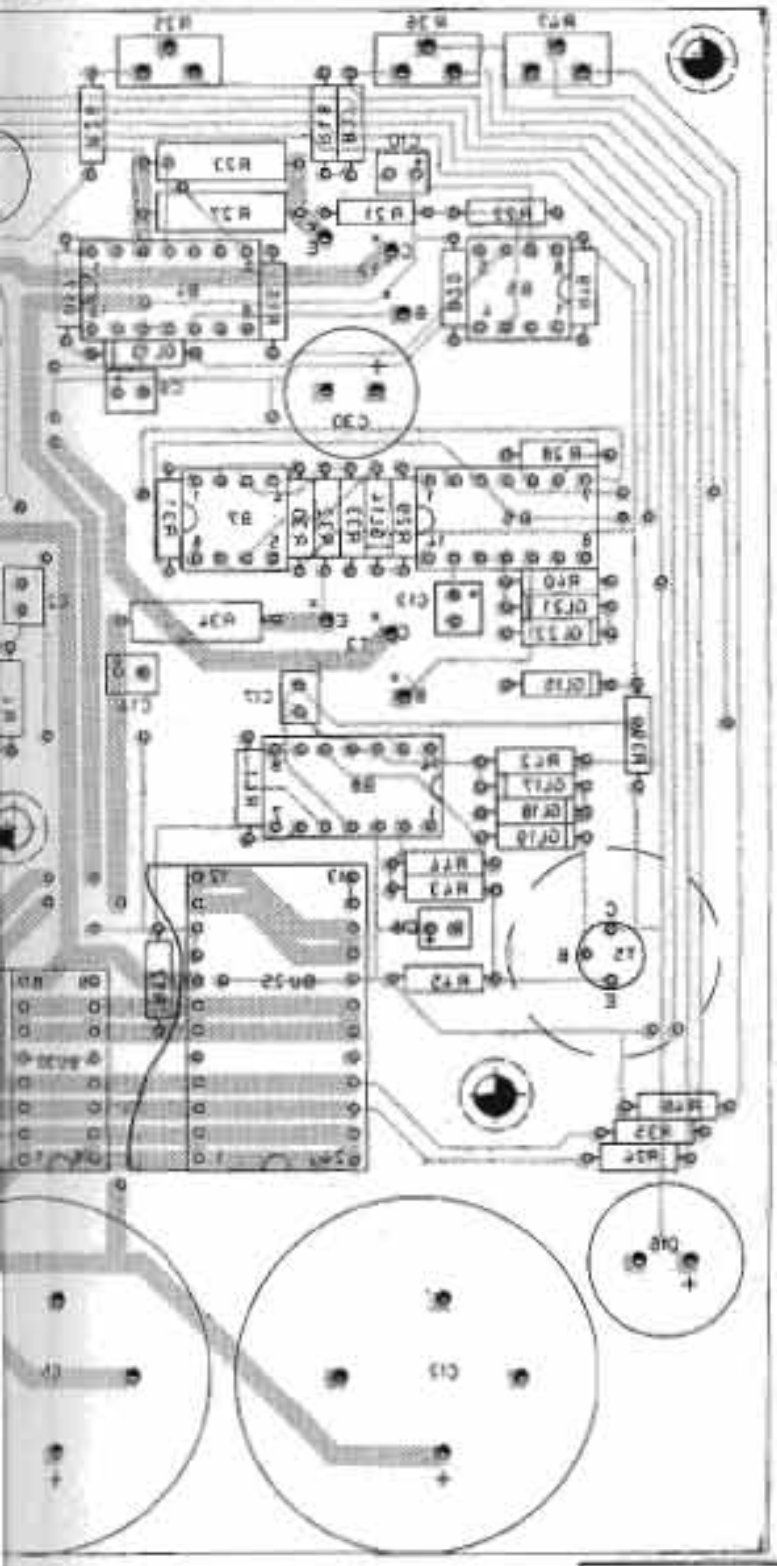


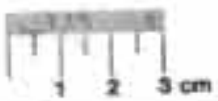
A	24545	10.78	MJ				
B	24791	04.79	Gn				

Ansicht und Leitun
View of tracks on s

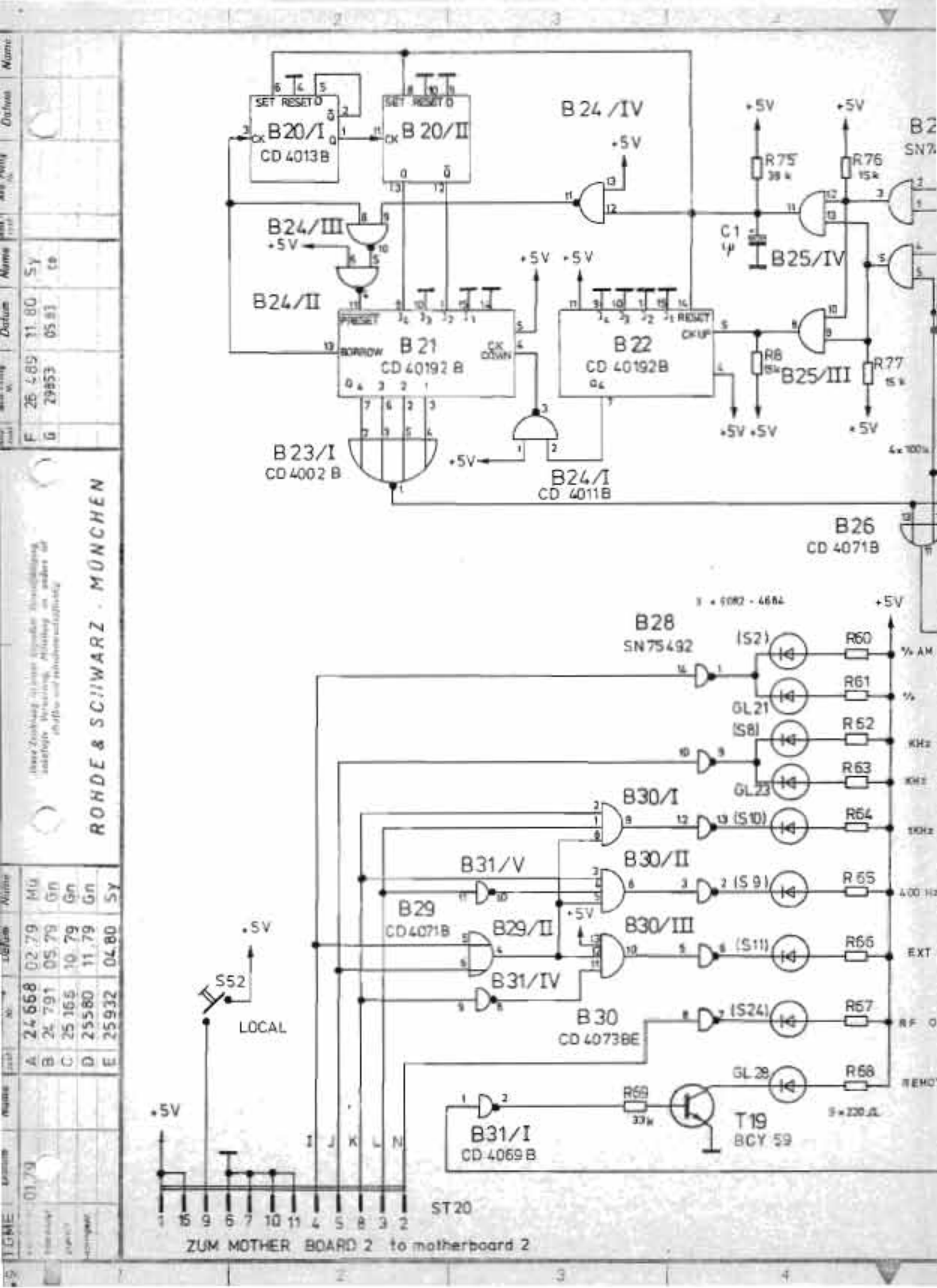


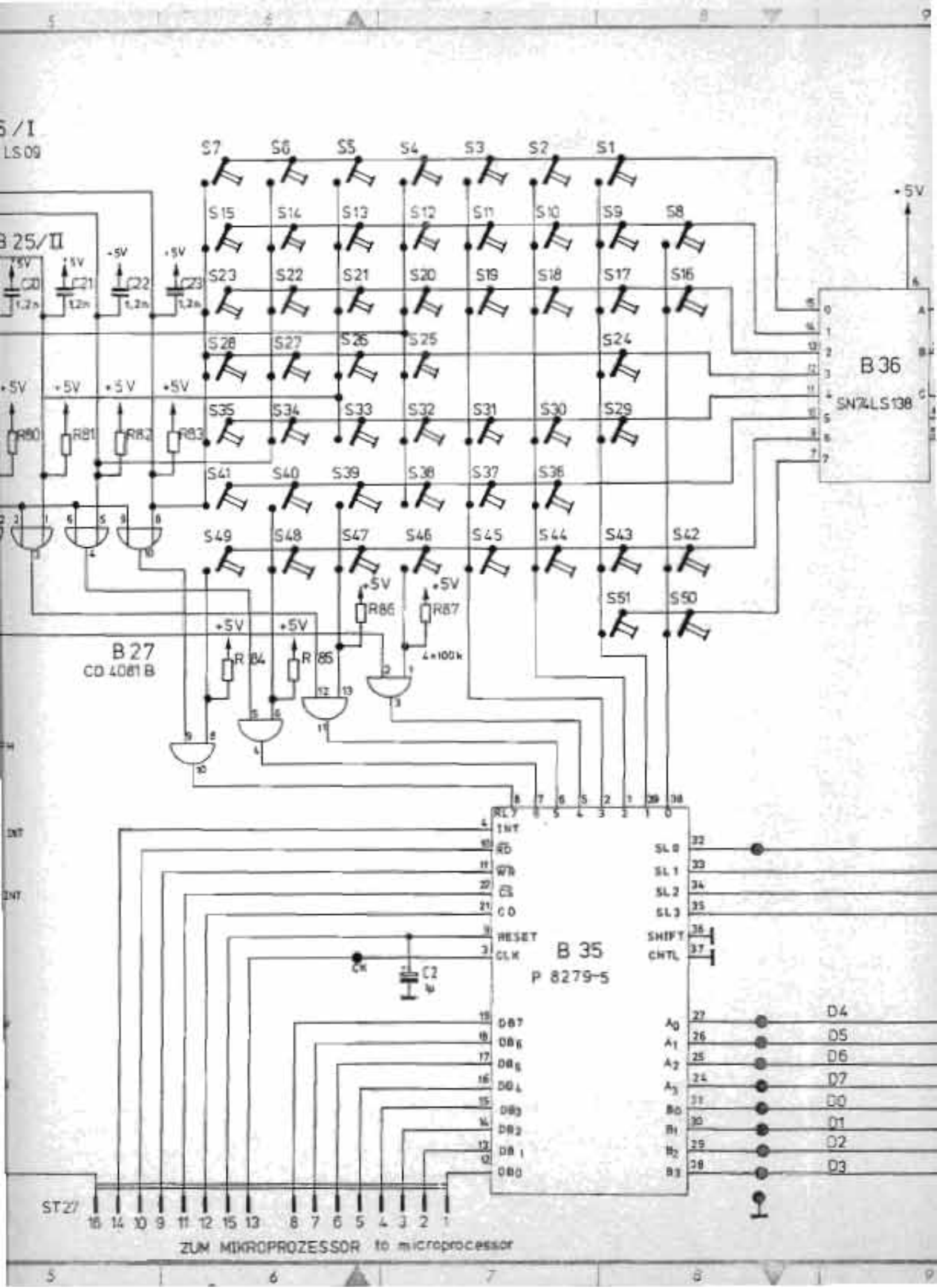
Leitungsführung Lötseite
s on solder side





A	24545	10.78	Mü		Maßstab 2 : 1	
B	24794	04.79	Kr			
				20.7.78	Benennung: Regelteil / Regulator	Z
					ROHDE & SCHWARZ München	Sach-Nr. 302.7711
					SR 3	Ident-Nr. 302.4012


B20/I
CD 4013 B
B 20/II
B 24 /IV
B24/III
B24/II
B21
CD 40192 B
B22
CD 40192B
B23/I
CD 4002 B
B24/I
CD 4011B
B25/IV
B25/III
R75
R76
R77
R8
C1
B26
CD 4071B
B28
SN 75492
B30/I
B30/II
B30/III
B31/V
B31/IV
B29
CD4071B
B29/II
B30
CD 4073BE
B31/I
CD 4069 B
T19
BCY 59
S52
LOCAL
ST20
ZUM MOTHER BOARD 2 to motherboard 2
ROHDE & SCHWARZ · MÜNCHEN


S7 S6 S5 S4 S3 S2 S1
S15 S14 S13 S12 S11 S10 S9 S8
S23 S22 S21 S20 S19 S18 S17 S16
S28 S27 S26 S25 S24
S35 S34 S33 S32 S31 S30 S29
S41 S40 S39 S38 S37 S36
S49 S48 S47 S46 S45 S44 S43 S42
S51 S50
+5V
B 36
SN74LS138
B 27
CD 4081 B
R84
R85
R86
R87
4 x 100 k
B 35
P 8279-5
INT
RD
WR
CS
CO
RESET
CLK
SL0
SL1
SL2
SL3
SHIFT
CNTL
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
A0
A1
A2
A3
B0
B1
B2
B3
D4
D5
D6
D7
D0
D1
D2
D3
ST27
16 14 10 9 11 12 15 13 8 7 6 5 4 3 2 1
ZUM MIKROPROZESSOR to microprocessor